STIC Search Report
EIC 1700

STIC Database Tracking Number: 211943

TO:	From:
John Maples Location: Remsen 6c89 Art Unit : 1745 January 4, 2007 Phone: 571-272-1287 Serial Number: 10 / 624226	Jan Delaval Location: EIC 1700 Remsen 4a30 Phone: 571-272-2504 jan.delaval@uspto.gov

Search Notes

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	22036	resistance and (current adj density) and (v or vanadium) and (cathode or electrode or battery or batteries or (electrochemical adj cell))	US-PGPUB; USPAT; USOCR	OR	ON	2007/01/04 14:38
L2	1484	(internal near2 resistance) and (current adj density) and (v or vanadium) and (cathode or electrode or battery or batteries or (electrochemical adj cell))	US-PGPUB; USPAT; USOCR	OR	ON	2007/01/04 14:39
L3	1042	(internal near2 resistance) and (current adj density) and (v or vanadium) and (cathode or electrode or battery or batteries or (electrochemical adj cell))	USPAT; USOCR	OR	ON	2007/01/04 14:40
L4	447	(internal near2 resistance) and (current adj density) and ((v or vanadium) near100 (cathode or electrode)) and (battery or batteries or (electrochemical adj cell))	US-PGPUB; USPAT; USOCR	OR	ON	2007/01/04 14:47
L5	285	(internal near2 resistance) and (current adj density) and ((v or vanadium) near100 (cathode or electrode)) and (battery or batteries or (electrochemical adj cell))	USPAT; USOCR	OR	ON	2007/01/04 14:47

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=> d his

     (FILE 'HOME' ENTERED AT 15:17:05 ON 04 JAN 2007)
               SET COST OFF

     FILE 'REGISTRY' ENTERED AT 15:17:17 ON 04 JAN 2007
L1        161783 S V/ELS OR 7440-62-2/CRN OR ?VANADIUM?/CNS
L2         53388 S (V/ELS OR 7440-62-2/CRN OR ?VANADIUM?/CNS) AND (O/ELS OR 1777
L3           355 S L2 AND 2/ELC.SUB NOT (CCS OR PMS OR RIS)/CI
L4            24 S L3 NOT (TIS OR AYS)/CI
L5             2 S L4 AND V2O5
L6             1 S L5 NOT MNS/CI
L7             7 S L4 AND NR>=1
L8            15 S L4 NOT L5-L7
L9            13 S L8 NOT MNS/CI
L10           11 S L9 NOT (V17O2 OR V17O)
L11          331 S L3 NOT L4-L10
L12          343 S L6,L10,L11

     FILE 'HCAPLUS' ENTERED AT 15:21:12 ON 04 JAN 2007
L13        29820 S L12
L14        37941 S ?VANADIUM? ?OXIDE?
L15         3152 S VANADIA
L16        43672 S L13-L15
L17        24717 S L16 AND PY<=2002 NOT P/DT
L18        36680 S L16 AND (PD<=20020722 OR PRD<=20020722 OR AD<=20020722)
L19        12057 S L18 AND P/DT
L20        36774 S L17,L19
L21         2547 S L20 AND BATTERY
               E BATTERY/CT
L22        58066 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7 OR E8+OLD,NT
               E E4+ALL
               E E8+ALL
               E E9+ALL
L23       238228 S (CATHODE? OR ELECTRODE? OR ANODE?)/CT
               E BATTERIES/CT
               E E3+ALL
L24       119091 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT
               E PRIMARY BATTERIES+ALL/CT
L25          488 S E6
L26         8995 S E22+OLD,NT
               E SECONDARY BATTERIES/CT
               E E3+ALL
               E E32+ALL
L27        23670 S E8+OLD
               E BATTERIES/CT
               E E3+ALL
               E E3+ALL
               E FUEL CELLS/CT
               E E3+ALL
L28        49399 S E6+OLD,NT
L29         3008 S L20 AND L22-L28
L30         3095 S L21,L29
L31           34 S L30 AND INTERN?(L)?RESIST?
L32           84 S L30 AND CURRENT(S)(DENSITY OR CAPACITY)
L33           41 S L30 AND CURRENT()(DENSITY OR CAPACITY)
L34           73 S L31,L33
L35           40 S L32 NOT L34

     FILE 'REGISTRY' ENTERED AT 15:28:18 ON 04 JAN 2007
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L36           6 S LI/MF NOT MASS

     FILE 'HCAPLUS' ENTERED AT 15:28:22 ON 04 JAN 2007
L37          23 S L36 AND L34
L38          17 S L36 AND L35
L39          58 S L34 AND (LI OR ?LITHIUM?)
L40          35 S L35 AND (LI OR ?LITHIUM?)
L41           5 S L31 AND L32,L33
L42          51 S L31,L37,L41
L43          62 S L34,L35,L37-L41 NOT L42
L44          32 S L42 AND P/DT
L45          19 S L42 NOT L44
L46           9 S L44 AND V2O5
L47          24 S L44,L46 AND BATTERY/TI
L48           8 S L44,L46 NOT L47
L49           6 S L48 NOT (138:76218 OR 136:331882)/DN
L50          30 S L47,L49
L51          18 S L50 AND INTERN?(5A)?RESIST?
L52          30 S L50,L51
L53          14 S L45 AND INTERN?(S)?RESIST?
L54          44 S L52,L53
L55           0 S L43 AND INTERN?(S)?RESIST?

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 15:35:46 ON 04 JAN 2007
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FILE LAST UPDATED: 3 Jan 2007  (20070103/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

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L54  ANSWER 1 OF 44  HCAPLUS  COPYRIGHT 2007 ACS on STN
AN   2006:3032  HCAPLUS
DN   144:91111
TI   Method for fabrication of rechargeable thin film battery
IN   Goldner, Ronald B.; Liu, Te-Yang; Goldner, Mark A.; Gerouki, Alexandra;
     Haas, Terry E.
PA   Trustees of Tufts College, USA
SO   U.S., 25 pp., Cont.-in-part of U.S. Ser. No. 951,085, abandoned.
     CODEN: USXXAM
DT   Patent
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LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6982132	B1	20060103	US 2000-638444	20000814 <--
PRAI	US 1997-951085	B2	19971015 <--		

AB A rechargeable, stackable, thin film, solid-state lithium electrochem. cell, thin film lithium **battery** and method for making the same is disclosed. The cell and **battery** provide for a variety configurations, voltage and **current capacities**. An innovative low temperature ion beam assisted deposition method for fabricating thin film, solid-state anodes, cathodes and electrolytes is disclosed wherein a source of energetic ions and evaporants combine to form thin film cell components having preferred crystallinity, structure and orientation. The disclosed **batteries** are particularly useful as power sources for portable electronic devices and elec. vehicle applications where high energy d., high reversible charge capacity, high discharge current and long **battery** lifetimes are required.

INCL 429162000; 429152000; 429160000; 429231100; 429231300; 429231800; 429245000; 429319000; 429322000; 029623500
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** rechargeable thin film fabrication method
IT **Secondary batteries**
(lithium; method for fabrication of rechargeable thin film **battery**)
IT Electric vehicles
Films
Ion beams
(method for fabrication of rechargeable thin film **battery**)
IT Alloys, uses
Nitrides
RL: DEV (Device component use); USES (Uses)
(method for fabrication of rechargeable thin film **battery**)
IT Electric apparatus
(portable; method for fabrication of rechargeable thin film **battery**)
IT Evaporation
(thermal; method for fabrication of rechargeable thin film **battery**)
IT 7429-90-5, Aluminum, uses **7439-93-2D**, Lithium, intercalation compound 7440-02-0, Nickel, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7782-42-5, Graphite, uses 11099-19-7 11104-61-3, Cobalt oxide 11113-67-0, Iron lithium oxide 11115-87-0, Hafnium nitride 11116-16-8, Titanium nitride 11126-15-1, Lithium **vanadium oxide** 12033-62-4, Tantalum nitride 12646-13-8, Aluminum lithium silicate 12648-34-9, Niobium nitride 12674-04-3, Vanadium nitride 39300-70-4, Lithium nickel oxide 39302-37-9, Lithium titanium oxide 39448-96-9, Graphite lithium 39457-42-6, Lithium manganese oxide 51177-06-1, Chromium lithium oxide 52627-24-4, Cobalt lithium oxide 119173-61-4, Zirconium nitride 160479-36-7, Lithium tin oxide 163612-99-5, Indium lithium tin oxide 168886-50-8, Lithium phosphorus oxide 184905-46-2, Lithium nitrogen phosphorus oxide 872345-59-0, Indium lithium oxide 872345-60-3
RL: DEV (Device component use); USES (Uses)
(method for fabrication of rechargeable thin film **battery**)
IT **7439-93-2D**, Lithium, intercalation compound
RL: DEV (Device component use); USES (Uses)
(method for fabrication of rechargeable thin film **battery**)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anonymous	1982	C4		The New York Times	
Arntz	1992			US 5171413 A	HCAPLUS
Arntz, F	1990	67	3177	J Appl Phys	HCAPLUS
Arntz, F	1989	1149	40	SPIE	HCAPLUS
Bates	1994			US 5338625 A	HCAPLUS
Bates	1995			US 5455126 A	HCAPLUS
Bates	1996			US 5512147 A	HCAPLUS
Bates	1996			US 5561004 A	
Bates	1996			US 5569520 A	HCAPLUS
Bates	1997			US 5597660 A	HCAPLUS
Bates	1997			US 5612152 A	HCAPLUS
Bates, J	1997	43	M644	ASAIO Journal	MEDLINE
Bates, J	1993		35	Ceramic Thin and Thi	
Bates, J	2000	147	59	J Electrochem Soc	HCAPLUS
Bates, J	1995	54	58	J of Power Sources	HCAPLUS
Bates, J	1993	43-44	103	Journal of Power Sou	
Bates, J	1994	70/71	619	Solid State Ionics	
Berera, G	1991	210	69	Mat Res Soc Symp Pro	HCAPLUS
Coetzer	1982			US 4366215 A	HCAPLUS
Dasgupta	1996			US 5498489 A	HCAPLUS
Demiryont	1993			US 5253101 A	HCAPLUS
Gerouki, A	1996	143	L262	J Electrochem Soc	HCAPLUS
Goldner	1989			US 4832463 A	HCAPLUS
Goldner	1989			US 4876628 A	HCAPLUS
Goldner	1991			US 5051274 A	HCAPLUS
Goldner	1993			US 5189550 A	HCAPLUS
Goldner	1996			US 5532869 A	HCAPLUS
Goldner, R	1983	43	1093	Appl Phys Lett	HCAPLUS
Goldner, R	1985	47	536	Appl Phys Lett	HCAPLUS
Goldner, R	1993	62	1699	Appl Phys Lett	HCAPLUS
Goldner, R	1985	24	2283	Applied Optics	HCAPLUS
Goldner, R	1995	95-22	173	Electrochemical Soci	
Goldner, R	1996	143	L129	J Electrochem Soc	HCAPLUS
Goldner, R	1995	13	1088	J Vac Sci Technol A	HCAPLUS
Goldner, R	1995	369	137	Mat Res Soc Symp Pro	HCAPLUS
Goldner, R	1994	1536	34	Proc SPIE	
Goldner, R	1999	98-15	268	Proc Symp Selected B	HCAPLUS
Goldner, R	1989	90-2	14	Proceedings Symp	
Goldner, R	1987	823	101	SPIE	HCAPLUS
Goldner, R	1984	11	177	Solar Energy Materia	HCAPLUS
Goldner, R	1985	12	403	Solar Energy Materia	HCAPLUS
Goldner, R	1986	14	195	Solar Energy Materia	HCAPLUS
Goldner, R	1988	28-30	1715	Solid State Ionics	
Goldner, R	1992	53-56	617	Solid State Ionics	HCAPLUS
Goldner, R	1994	70/71	613	Solid State Ionics	
Green	1990			US 4902110 A	
Gummow, R	1992	53-56	681	Solid State Ionics	HCAPLUS
Haas	1992			US 5133594 A	HCAPLUS
Haas, T	1988		63	18th Northeast Regio	
Haas, T	1988	IS4	170	SPIE Institute Serie	
Hobson	1995			US 5445906 A	HCAPLUS

Idota	1997			US 5686203 A	HCAPLUS
Johnson	2001			US 6242129 B1	HCAPLUS
Julien, C	1994		146	Solid State Batterie	
Kenny, L	1996	415	213	Materials Research S	HCAPLUS
Kirimura, H	1999			Japanese Kokai Paten	
Levasseur, S	2000	128	11	Solid State Ionics	HCAPLUS
Liu	1999			US 5908715 A	HCAPLUS
Neudecker	2001			US 6168884 B1	HCAPLUS
Ovshinsky	1996			US 5512387 A	HCAPLUS
Ozaki	1998			US 5789111 A	HCAPLUS
Rauh	1989			US 4889414 A	
Rosen, E	1993	62	53	Solid State Ionics	
Seward, G	1987	823	90	SPIE	HCAPLUS
Shackle	1994			US 5300373 A	HCAPLUS
Shokoohi	1992			US 5110696 A	HCAPLUS
Thackeray, M	1995	142	2558	J Electrochem Soc	HCAPLUS
Thackeray, M	1994		233	Proc Symp Rechargabl	
Thomas, M	1985	17	13	Solid State Ionics	HCAPLUS
Wang, B	1996	143	3203	J Electrochem Soc	HCAPLUS
Wang, H	1999	146	473	J Electrochem Soc	HCAPLUS
Wei, G	1989	90	80	Proc Electrochemical	
Wei, G	1992	58	115	Solid State Ionics	HCAPLUS
Weiss, R	1991		21	Lasers & Optronics	
Weppner	1993			US 5202788 A	HCAPLUS
Wong, K	1987	823	84	SPIE	HCAPLUS

L54 ANSWER 2 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:81048 HCAPLUS
DN 140:114283
TI High capacity and high rate **batteries** for implantable medical devices
IN Ghantous, Dania I.; Pinoli, Allison A.
PA Nanogram Corporation, USA
SO PCT Int. Appl., 112 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004010520	A1	20040129	WO 2003-US22741	20030722 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	CA 2493517	A1	20040129	CA 2003-2493517	20030722 <--
	AU 2003256641	A1	20040209	AU 2003-256641	20030722 <--
	US 2004121195	A1	20040624	US 2003-624226	20030722 <--
	EP 1543572	A1	20050622	EP 2003-765837	20030722 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2005534149	T	20051110	JP 2004-523212	20030722 <--
PRAI	US 2002-397631P	P	20020722	<--	
	WO 2003-US22741	W	20030722		

AB Improved **batteries** described herein generally comprise an electrolyte having lithium ions and a cathode comprising submicron metal **vanadium oxide** particles. In some embodiments, the **battery** demonstrate an accessible **current capacity** of at least about 220 mAh/g when pulsed in groups of four constant energy pulses at a c.d. of 30 mA/cm2 to deliver 50 J/pulse. The four pulses of a pulse train are separated by 15 s of rest between each pulse, and there are 6 days between pulse groups, upon discharge down to a pulse discharge voltage of 2 V. In further embodiments, the **batteries** have an average **internal** elec. **resistance** of no more than 0.2 Ω at a c.d. of at least about 30 mA/cm2. Furthermore, the **batteries** can have a current capability of at least about 0.4 A/cm3 **battery** volume Due to the improved discharge performance, the **batteries** can exhibit no significant voltage delay throughout the life of the **battery** as demonstrated in a three month accelerated discharge test.

IC ICM H01M0004-34
ICS H01M0004-46

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63

ST **battery** high capacity implantable medical device

IT Medical goods
(defibrillators; high capacity and high rate **batteries** for implantable medical devices)

IT Heat treatment
(high capacity and high rate **batteries** for implantable medical devices)

IT **Primary batteries**
(lithium; high capacity and high rate **batteries** for implantable medical devices)

IT Thermal decomposition
(photo-; high capacity and high rate **batteries** for implantable medical devices)

IT Heart, disease
(ventricular fibrillation, defibrillators; high capacity and high rate **batteries** for implantable medical devices)

IT 96-49-1, Ethylene carbonate 110-71-4, Dme 112-49-2, Triglyme 616-38-6, Dimethyl carbonate **7439-93-2**, Lithium, uses 9003-07-0, Polypropylene 11105-02-5, Silver **vanadium oxide** 21324-40-3, Lithium hexafluorophosphate 220356-17-2, Silver **vanadium oxide** Ag0.3-2V2O4.5-6
RL: DEV (Device component use); USES (Uses)
(high capacity and high rate **batteries** for implantable medical devices)

IT **1314-62-1P**, **Vanadium oxide v2o5**, uses **12036-21-4P**, **Vanadium oxide** vo2 12181-74-7P, Vanadium carbide v8c7
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(high capacity and high rate **batteries** for implantable medical devices)

IT 7440-22-4, Silver, uses 7782-42-5, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(high capacity and high rate **batteries** for implantable medical devices)

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(high capacity and high rate **batteries** for implantable medical devices)

RN 7439-93-2 HCAPLUS

CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **1314-62-1P, Vanadium oxide v2o5,**
uses **12036-21-4P, Vanadium oxide** vo2
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(high capacity and high rate **batteries** for implantable medical devices)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12036-21-4 HCAPLUS
CN Vanadium oxide (VO2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

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RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Bi	1999			US 5925125 A	
Kambe	2000			US 6106798 A	HCAPLUS
Leising	1997			US 5695892 A	HCAPLUS
Takeuchi	1995			US 5389472 A	HCAPLUS
Takeuchi	1996			US 5498494 A	HCAPLUS

L54 ANSWER 3 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:81126 HCAPLUS
DN 138:371560
TI NMR and AC impedance spectra of LixV2O5 electrodes at different charge states
AU Moss, P.; Ma, Z. R.; Fu, R. Q.; Au, G.; Plichta, E. J.; Zheng, J. P.
CS Department of Electrical and Computer Engineering, Florida A&M University and Florida State University, Tallahassee, FL, 32310, USA
SO Proceedings of the Power Sources Conference (**2002**), 40th, 335-338
CODEN: PPOCFD
PB National Technical Information Service
DT Journal
LA English
AB Li-ion rechargeable cells configured as Li/membrane/LixV2O3 were examined by a.c. impedance and NMR spectroscopy with the cells being fully charged, fully discharged, and over-cycled. The **internal resistances** at 0.01 Hz were 11Ω, 143Ω, and 812Ω for the charged, discharged, and over-cycled cells resp. 7Li NMR chemical shifts of 0 and -20 ppm relative to the resonance frequency, which corresponds to Li ions from the residual electrolyte and LixV2O5, resp., were measured for LixV2O5 samples in both charged and discharged cells. From the temperature dependent 7Li NMR spectral measurements the Knight shifts of the signal at -20 ppm were obtained and these were due to Li ions at the surface and in the LixV2O5 particles resp. Similar 51V NMR spectra were obtained from LixV2O5 from the charged and over-cycled cells but, the intensity of the 51V NMR signal from the discharged cell was significantly

reduced due to paramagnetic V+4 and V+3 species.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium **vanadium oxide** cathode impedance spectroscopy charge state **battery**; NMR spectroscopy lithium **vanadium oxide** cathode charge state **battery**
IT **Battery cathodes**
(NMR and a.c. impedance spectroscopy of lithium **vanadium oxide** cathodes at different charge states)
IT 11126-15-1, Lithium **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(NMR and a.c. impedance spectroscopy of lithium **vanadium oxide** cathodes at different charge states)
RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Amine, K	2001	97-98	684	J Power Sources	HCAPLUS
Appetecchi, G	2001	97-98	790	J Power Sources	HCAPLUS
Carewska, M	1997	93	227	Solid State Ionics	HCAPLUS
Dai, Y	1998	145	1179	J Electrochem Soc	HCAPLUS
Dybowski, C	1998	70	1R	Anal Chem	HCAPLUS
Eckert, H	1996	2	756	Encyclopedia of Nucl	
Gerald, R	2000	89	237	J Power Sources	HCAPLUS
Guerin, K	2000	127	187	Solid State Ionics	HCAPLUS
Gunther, H	1996	4	2825	Encyclopedia of Nucl	
Kwon, C	2001	93	145	J Power Sources	HCAPLUS
Liu, Z	1998	74	228	J Power Sources	HCAPLUS
Morita, M	2001	97-98	354	J Power Sources	HCAPLUS
Rabou, L	1995	54	316	J Power Sources	HCAPLUS
Stallworth, P	1998	83	1247	J Appl Phys	HCAPLUS
Yang, J	1999	79	220	J Power Sources	HCAPLUS

L54 ANSWER 4 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:964983 HCAPLUS
DN 138:15305
TI Multi-salt electrolyte for electrochemical applications
IN Mao, Zhenhua; Zhang, Ji-Guang; Yu, Aishui; Breitkopf, Richard C.
PA USA
SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002192546	A1	20021219	US 2001-876472	20010607 <--
WO 2002101870	A1	20021219	WO 2002-US17788	20020605 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2001-876472 A 20010607 <--
AB Systems and methods are disclosed for providing electrolytes having a multi-salt mixture used in electrochem. systems such as lithium ion **batteries**. The **battery** system generally includes a

cathode, anode and electrolyte cells. The cells prepared with the multi-salt electrolyte, for instance, a mixed lithium/sodium mixed salt electrolyte, exhibit nearly the same capacity as those using pure lithium salt electrolyte. These cells exhibit improved cyclability, smaller **internal resistance** and better rate capability than those using pure lithium electrolyte. The multi-salt electrolyte is electrochem. stable within a voltage range of about 4.8 to 2.5 V. The mixed Li/Na salt electrolytes provide a cost alternative to a pure lithium salt and enhance the electrochem. properties of lithium ion **batteries.**

IC ICM H01M0010-40
INCL 429188000; 429339000; 429337000; 429338000; 429342000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72, 76
ST electrolyte multisalt electrochem application; **battery** application electrolyte multisalt
IT **Secondary batteries**
(lithium; multi-salt electrolyte for electrochem. applications)
IT **Battery cathodes**
Battery electrolytes
(multi-salt electrolyte for electrochem. applications)
IT 1313-13-9, Manganese dioxide, uses **1314-62-1, Vanadium oxide (V2O5)**, uses 1332-29-2, Tin oxide 2926-30-9, Sodium triflate 7440-44-0, Carbon, uses 7601-89-0, Sodium perchlorate 7791-03-9, Lithium perchlorate 12005-86-6, Sodium hexafluoroarsenate 12031-65-1, Lithium nickel oxide linio2 **12037-42-2, Vanadium oxide** V6O13 12039-13-3, Titanium sulfide (TiS2) 12057-17-9, Lithium manganese oxide limn2o4 12190-79-3, Cobalt lithium oxide colio2 13755-29-8, Sodium tetrafluoroborate 14283-07-9, Lithium tetrafluoroborate 21324-39-0, Sodium hexafluorophosphate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 55574-97-5, Tin nitride 135573-53-4, Cobalt lithium nickel oxide Co0-1LiNi0-1O2 257621-13-9, Cobalt Lithium manganese oxide Co0-1LiMn1-2O4 324035-86-1, Cobalt iron lithium oxide ((Co,Fe)LiO2) 350679-83-3, Iron Lithium manganese oxide Fe0-1LiMn1-2O4 368858-63-3, Chromium Lithium manganese oxide Cr0-1LiMn1-2O4 435268-40-9, Chromium cobalt lithium oxide ((Cr,Co)LiO2) 477782-01-7, Cobalt lithium titanium oxide ((Co,Ti)LiO2) 477782-02-8, Cobalt germanium lithium oxide ((Co,Ge)LiO2) 477782-03-9, Cobalt lithium zinc oxide ((Co,Zn)LiO2) 477782-04-0, Cobalt **vanadium oxide** (Co0-1V1-2O5) 477782-05-1, Cobalt **vanadium oxide** (Co0-1V5-6O13) 477782-06-2, Chromium **vanadium oxide** (Cr0-1V1-2O5) 477782-07-3, Chromium **vanadium oxide** (Cr0-1V5-6O13) 477782-08-4, Nickel **vanadium oxide** (Ni0-1V1-2O5) 477782-09-5, Nickel **vanadium oxide** (Ni0-1V5-6O13) 477782-10-8, Molybdenum **vanadium oxide** (Mo0-1V1-2O5) 477782-11-9, Molybdenum **vanadium oxide** (Mo0-1V5-6O13) 477782-12-0, Lithium manganese titanium oxide (LiMn1-2Ti0-1O4) 477782-13-1, Germanium lithium manganese oxide (Ge0-1LiMn1-2O4) 477782-14-2, Lithium manganese zinc oxide (LiMn1-2Zn0-1O4) 477782-15-3, Lithium manganese nickel oxide (LiMn1-2Ni0-1O4)
RL: DEV (Device component use); USES (Uses)
(multi-salt electrolyte for electrochem. applications)
IT **1314-62-1, Vanadium oxide (V2O5)**, uses **12037-42-2, Vanadium oxide** V6O13
RL: DEV (Device component use); USES (Uses)
(multi-salt electrolyte for electrochem. applications)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

L54 ANSWER 5 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:503508 HCAPLUS
DN 137:65726
TI Silver **vanadium oxide** having low **internal resistance** for **battery** cathodes and method of manufacture
IN Takeuchi, Esther S.; Palazzo, Marcus
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 19 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1220342	A2	20020703	EP 2001-310945	20011228 <--
	EP 1220342	A3	20030917		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	CA 2366191	A1	20020628	CA 2001-2366191	20011224 <--
	CA 2366191	C	20050726		
	US 2002086209	A1	20020704	US 2001-37133	20011227 <--
	US 6803147	B2	20041012		
	JP 2002319397	A	20021031	JP 2001-403165	20011228 <--
PRAI	US 2000-259068P	P	20001228 <--		
	US 2001-37133	A	20011227 <--		

AB The current invention relates to the preparation of an improved cathode active material for nonaq. lithium electrochem. cell. In particular, the cathode active material comprises ε-phase silver **vanadium oxide** prepared by using a γ-phase silver **vanadium oxide** starting material. The reaction of γ-phase SVO with a silver salt produces the novel ε-phase SVO possessing a lower surface area than ε-phase SVO produced from **vanadium oxide** (**V2O5**) and a similar silver salt as starting materials. Consequently, the low surface area ε-phase SVO material provides an advantage in greater long term stability in pulse dischargeable cells.
IC H01M0004-48; H01M0004-54
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** cathode silver **vanadium oxide**
IT **Secondary batteries**
(lithium; silver **vanadium oxide** having low **internal resistance** for **battery** cathodes and method of manufacture)
IT **Battery cathodes**
(silver **vanadium oxide** having low **internal resistance** for **battery** cathodes and method of manufacture)
IT 509-09-1, Silver pentafluoropropionate 534-16-7, Silver carbonate

1314-34-7, Vanadium oxide v2o3
1314-62-1, Vanadia, processes 2923-28-6, Silver triflate 3507-99-1, Silver stearate 3508-01-8, Silver palmitate 7761-88-8, Silver nitrate, processes 7803-55-6, Ammonium vanadate 11105-02-5, Silver vanadate **12037-42-2, Vanadium oxide** v6o13 13497-94-4, Silver **vanadium oxide** agvo3 15768-18-0, Silver lactate 18268-45-6, Silver laurate 18268-46-7, Silver myristate 20667-12-3, Silver oxide 191404-47-4, **Vanadium oxide** v2o4
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(silver **vanadium oxide** having low **internal resistance** for **battery** cathodes and method of manufacture)

IT 7440-22-4DP, Silver, salts, reaction product of γ-phase silver **vanadium oxides** 12026-36-7P, Silver **vanadium oxide** Ag2V4O11 346712-58-1DP, Silver **vanadium oxide** Ag0.8V2O5.4, reaction product of silver salt
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(silver **vanadium oxide** having low **internal resistance** for **battery** cathodes and method of manufacture)

IT **1314-34-7, Vanadium oxide v2o3**
1314-62-1, Vanadia, processes **12037-42-2, Vanadium oxide** v6o13
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(silver **vanadium oxide** having low **internal resistance** for **battery** cathodes and method of manufacture)

RN 1314-34-7 HCAPLUS
CN Vanadium oxide (V2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

L54 ANSWER 6 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:172314 HCAPLUS
DN 136:219532
TI High rate **batteries** with metal **vanadium oxides** for implantable medical devices
IN Ghantous, Dania I.; Chaloner-Gill, Benjamin; Chiruvolu, Shivkumar; Banfol, Devendra R.; McGovern, William E.; Cornell, Ronald M.; Hoang, Khanh; Pinoli, Allison A.
PA Nanogram Corporation, USA
SO PCT Int. Appl., 107 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 30

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2002019448	A1	20020307	WO 2001-US41902	20010828	<--
	W: CN, JP, KR					
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR					
	US 6503646	B1	20030107	US 2000-649752	20000828	<--
	EP 1338043	A1	20030827	EP 2001-964649	20010828	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR					
	JP 2004508669	T	20040318	JP 2002-524243	20010828	<--
	CN 1531480	A	20040922	CN 2001-820305	20011026	<--
	US 2003077513	A1	20030424	US 2002-303622	20021125	<--
PRAI	US 2000-649752	A	20000828	<--		
	US 2000-243491P	P	20001026	<--		
	WO 2001-US41902	W	20010828	<--		

AB Improved high rate **batteries** based on silver **vanadium oxide** yield improved pulsed performance. In particular, **batteries** comprise an electrolyte having lithium ions and a cathode comprising silver **vanadium oxide**. Improved **batteries** have a pulsed specific energy of at least about 575 mW-h/g when pulsed in groups of four-10 s pulses at a c.d. of 25 mA/cm2 spaced by 15 s between pulses and with 30 min between pulse groups down to a discharge voltage of 1.5 V. In addition, improved **batteries** can achieve high maximum specific powers, high **current densities** and no voltage delay in pulsed operation. The **batteries** are particularly suitable for use in implantable medical devices, such as, defibrillators, pacemakers or combinations thereof. Improved processing approaches are described.

IC ICM H01M0004-34

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63

ST **battery** silver **vanadium oxide** implantable medical device

IT Prosthetic materials and Prosthetics
(cardiovascular implants, defibrillators; high rate **batteries** with metal **vanadium oxides** for implantable medical devices)

IT Acrylic polymers, uses
EPDM rubber
Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(high rate **batteries** with metal **vanadium oxides** for implantable medical devices)

IT Prosthetic materials and Prosthetics
(implants, artificial heart pacemaker; high rate **batteries** with metal **vanadium oxides** for implantable medical devices)

IT **Secondary batteries**
(lithium; high rate **batteries** with metal **vanadium oxides** for implantable medical devices)

IT Heart
(pacemaker, artificial; high rate **batteries** with metal **vanadium oxides** for implantable medical devices)

IT **1314-62-1, Vanadium pentoxide**, processes
7761-88-8, Silver nitrate, processes **12036-21-4, Vanadium oxide** vo2 **12037-42-2, Vanadium oxide** v6o13 13520-87-1, Vanadium chloride

oxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(high rate **batteries** with metal **vanadium** **oxides** for implantable medical devices)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 75-12-7, Formamide, uses 75-52-5, Nitromethane, uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, Dioxolane **7439-93-2**, Lithium, uses 11105-02-5, Silver **vanadium oxide** 12026-36-7, Silver **vanadium oxide** Ag2V4O11
RL: DEV (Device component use); USES (Uses)
(high rate **batteries** with metal **vanadium** **oxides** for implantable medical devices)

IT 7440-44-0, Carbon, uses 9002-84-0, Ptfe 9002-88-4, Polyethylene 9003-07-0, Polypropylene 13497-94-4, Silver metavanadate 24937-79-9, Pvdf 25322-68-3, Peo
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(high rate **batteries** with metal **vanadium** **oxides** for implantable medical devices)

IT **1314-62-1, Vanadium pentoxide**, processes
12036-21-4, Vanadium oxide vo2
12037-42-2, Vanadium oxide v6o13
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(high rate **batteries** with metal **vanadium** **oxides** for implantable medical devices)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12036-21-4 HCAPLUS
CN Vanadium oxide (VO2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O═V═O

RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(high rate **batteries** with metal **vanadium** **oxides** for implantable medical devices)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Crespi	1993			US 5221453 A	HCAPLUS
Crespi	1998			US 5766797 A	HCAPLUS
Takeuchi	1995			US 5389472 A	HCAPLUS
Takeuchi	1996			US 5498494 A	HCAPLUS

L54 ANSWER 7 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:69602 HCAPLUS
DN 136:105176
TI Lithium secondary **battery** cathodes and the **batteries**
IN Soo, Yoon Yan; Il, Cho Won; Won, Cho Byun; Suk, Yung Kyu; Jin, Jung Hyun; Jong, Jong Eung; Chul, Nan San; Ha, Shin Yan
PA Korea Institute of Science and Technology, S. Korea
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002025557	A	20020125	JP 2001-110850	20010410 <--
	KR 2001112731	A	20011221	KR 2000-32150	20000612 <--
	US 2003207176	A1	20031106	US 2001-770990	20010126 <--
PRAI	KR 2000-32150	A	20000612 <--		

AB The cathodes contain (a) V oxide active materials and (b) conductive materials that stabilize under O or S atmospheric Secondary lithium **batteries** including the cathodes are also claimed. **Internal resistance** in cathodes are minimized by structural stabilization of V oxide.
IC ICM H01M0004-62
ICS C01G0031-00; H01M0004-02; H01M0004-48; H01M0010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium secondary **battery** cathode **vanadium oxide**; platinum stabilizer **vanadium oxide** **battery** cathode
IT **Secondary batteries**
(lithium; secondary lithium **battery** cathodes containing **vanadium oxide** and conductive stabilizers)
IT Electric conductors
Superconductors
(oxides; secondary lithium **battery** cathodes containing **vanadium oxide** and conductive stabilizers)
IT **Battery cathodes**
(secondary lithium **battery** cathodes containing **vanadium oxide** and conductive stabilizers)
IT 7440-06-4, Platinum, uses 12789-09-2, Copper **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(secondary lithium **battery** cathodes containing **vanadium oxide** and conductive stabilizers)
IT **1314-62-1, Vanadium oxide**, uses 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-18-8, Ruthenium, uses 7440-57-5, Gold, uses 58049-12-0

RL: TEM (Technical or engineered material use); USES (Uses)
(secondary lithium **battery** cathodes containing **vanadium oxide** and conductive stabilizers)

IT **1314-62-1, Vanadium oxide**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(secondary lithium **battery** cathodes containing **vanadium oxide** and conductive stabilizers)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 8 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:51920 HCAPLUS
DN 136:88460
TI Lithium polymer secondary **battery**
IN Ishida, Akiko; Nishimura, Ken; Ogawa, Masahiko; Eda, Nobuo; Kitagawa, Masaki; Sakai, Tetsuhisa
PA Matsushita Electric Industrial Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002006552	A1	20020117	US 1998-42681	19980312 <--
	US 6905796	B2	20050614		
	EP 1148563	A2	20011024	EP 2001-105978	19980310 <--
	EP 1148563	A3	20011107		
	EP 1148563	B1	20040818		
	R: DE, FR, GB				
PRAI	JP 1997-58941	A	19970313 <--		
	JP 1997-58964	A	19970313 <--		
	EP 1998-104225	A3	19980310 <--		
	US 1998-42681	A	19980312 <--		

AB A lithium secondary **battery** has high **capacity** and excellent **current** characteristics. The lithium **battery** comprises of a pos. electrode, a neg. electrode and an electrolyte; a least one of the electrodes contains ceramics particles such as Al2O3 irresponsible for the charge ad discharge reactions of the **battery**. The presence of the ceramics particles in the electrode leads to a decrease in the **internal resistance** of the **battery** because of the enhancement of ion conductivity in the electrode, resulting in higher capacity at high rate discharge of the lithium secondary **battery**.

IC ICM H01M0010-40
ICS H01M0004-62
INCL 429303000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium polymer secondary **battery**
IT Polymer electrolytes
(gel; lithium polymer secondary **battery**)
IT **Battery anodes**
Battery cathodes
Battery electrolytes
Ceramics
(lithium polymer secondary **battery**)
IT Carbon black, uses

RL: MOA (Modifier or additive use); USES (Uses)
(lithium polymer secondary **battery**)

IT **Secondary batteries**
(lithium; lithium polymer secondary **battery**)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate **7439-93-2**, Lithium, uses 7782-42-5, Graphite, uses **12037-42-2**, **Vanadium oxide** v6o13 21324-40-3, Lithium hexafluorophosphate 26570-48-9, Polyethylene glycol diacrylate
RL: DEV (Device component use); USES (Uses)
(lithium polymer secondary **battery**)

IT 84-74-2 1309-48-4, Magnesia, uses 1313-59-3, Sodium oxide na2o, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 9011-17-0, Propylene hexafluoride-vinylidene fluoride copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(lithium polymer secondary **battery**)

IT **7439-93-2**, Lithium, uses **12037-42-2**, **Vanadium oxide** v6o13
RL: DEV (Device component use); USES (Uses)
(lithium polymer secondary **battery**)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Andrei	1998			US 5756231 A	HCAPLUS
Angell	1998			US 5849432 A	HCAPLUS
Anon	1988			EP 0284104	HCAPLUS
Anon	1990			EP 0379372	HCAPLUS
Anon	1992			JP 04206168	HCAPLUS
Anon	1993			JP 05-109310	HCAPLUS
Anon	1994			WO 9424715	HCAPLUS
Anon	1995			JP 07-153495	HCAPLUS
Anon	1995			JP 07-153495 A	HCAPLUS
Anon	1995			JP 07-153496	HCAPLUS
Anon	1995			JP 07-235293	HCAPLUS
Anon	1995			WO 9506332	HCAPLUS
Anon	1996			JP 08-298121	HCAPLUS
Anon	1996			JP 08-321301	HCAPLUS
Anon	1996			JP 08-321301	HCAPLUS
Anon	1996			JP 08031407	
Anon	1997			JP 09-22732	HCAPLUS
Anon	1997			JP 09-306543	HCAPLUS
Anon	1997			WO 9701870	HCAPLUS
Anon	1998			EP 0836238	HCAPLUS
Anon	1998			JP 10-116513	HCAPLUS

Anon	1998		JP 10-188957	HCAPLUS
Blonsky	1997		US 5648011 A	HCAPLUS
Chang	1996		US 5545496 A	HCAPLUS
Holleck	1978		US 4127703 A	HCAPLUS
Kawakami	1999		US 5888666 A	HCAPLUS
Kejha	1996		US 5529707 A	HCAPLUS
Nagasubramanian	1997		US 5599355 A	HCAPLUS
Tsukamoto	1997		US 5677084 A	HCAPLUS

L54 ANSWER 9 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:537410 HCAPLUS
DN 135:109730
TI Alkali metal electrochemical cell activated with a nonaqueous electrolyte having a sulfate additive
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO U.S., 13 pp., Cont.-in-part of U.S. 6,180,283.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6265106	B1	20010724	US 2000-491355	20000126 <--
	US 6013394	A	20000111	US 1998-9557	19980120 <--
	US 6180283	B1	20010130	US 1999-460035	19991213 <--
	US 6350546	B1	20020226	US 2000-519534	20000306 <--
	CA 2316438	A1	20010613	CA 2000-2316438	20000818 <--
	EP 1109244	A2	20010620	EP 2000-311118	20001213 <--
	EP 1109244	A3	20020724		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001176548	A	20010629	JP 2000-378551	20001213 <--
	TW 478201	B	20020301	TW 2000-89126603	20001213 <--
PRAI	US 1998-9557	A2	19980120 <--		
	US 1999-460035	A2	19991213 <--		
	US 2000-491355	A2	20000126 <--		
	US 2000-519534	A	20000306 <--		

AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one organic sulfate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane and a sulfate additive.
IC ICM H01M0004-60
INCL 429215000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** electrolyte org sulfate additive
IT **Battery electrolytes**
(alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)
IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 120-94-5, N-Methyl pyrrolidine 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate

616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 629-14-1, 1,2-Diethoxyethane 2923-17-3 2923-20-8 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane **7439-93-2**, Lithium, uses 7791-03-9, Lithium perchlorate 11099-11-9, **Vanadium oxide** 11105-02-5, Silver **vanadium oxide** 12057-24-8, Lithia, uses 12789-09-2, Copper **vanadium oxide** 12798-95-7 13453-75-3, Lithium fluorosulfate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1 132404-42-3 181183-66-4, Copper Silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1997			JP 09245833	HCAPLUS
Blomgren	1984			US 4444855	HCAPLUS
Clark	1984			US 4489144	HCAPLUS
Connelly	1984			US 4482616	HCAPLUS
Connelly	1986			US 4612265	HCAPLUS
Daifuku	1990			US 4957833	HCAPLUS
Maricle	1971			US 3567515	
Takeuchi	1995			US 5472810	HCAPLUS
Tinker	1985			US 4520084	HCAPLUS
Toyosawa	1990			US 4906538	HCAPLUS

L54 ANSWER 10 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:489871 HCAPLUS
DN 135:79494
TI Alkali metal **battery** activated with a nonaqueous electrolyte having a sulfate additive
IN Gan, Hong; Takeuchi, Esther S.
PA USA
SO U.S. Pat. Appl. Publ., 7 pp., Cont.-in-part of U.S. 6,180,283.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001006751	A1	20010705	US 2001-772680	20010130 <--
	US 6444360	B2	20020903		
	US 6013394	A	20000111	US 1998-9557	19980120 <--

US 6180283 B1 20010130 US 1999-460035 19991213 <--
PRAI US 1998-9557 A2 19980120 <--
US 1999-460035 A2 19991213 <--
OS MARPAT 135:79494
AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one organic sulfate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, 1,2-dimethoxyethane and a sulfate additive having at least one unsatd. hydrocarbon containing a C(sp or sp2)-C(sp3) bond unit having the C(sp3) carbon directly connected to the -OSO3- functional group.
IC ICM H01M0010-40
INCL 429340000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** electrolyte sulfate additive
IT **Battery electrolytes**
(alkali metal **battery** activated with nonaq. electrolyte having sulfate additive)
IT Carbon black, uses
Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(alkali metal **battery** activated with nonaq. electrolyte having sulfate additive)
IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, uses 2923-17-3 2923-20-8 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane **7439-93-2**, Lithium, uses 7791-03-9, Lithium perchlorate 11099-11-9, **Vanadium oxide** 11105-02-5, Silver **vanadium oxide** 12057-24-8, Lithia, uses 12789-09-2, Copper **vanadium oxide** 12798-95-7 13453-75-3, Lithium fluorosulfate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 132404-42-3 135023-75-5, Lithium phenylsulfate 181183-66-4, Copper silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(alkali metal **battery** activated with nonaq. electrolyte having sulfate additive)
IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 18495-74-4, Dibenzyl sulfate 27063-40-7 347396-84-3 347396-86-5
RL: MOA (Modifier or additive use); USES (Uses)
(alkali metal **battery** activated with nonaq. electrolyte having sulfate additive)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 12597-68-1, stainless steel, uses
RL: MOA (Modifier or additive use); USES (Uses)
(powder; alkali metal **battery** activated with nonaq.

electrolyte having sulfate additive)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(alkali metal **battery** activated with nonaq. electrolyte having sulfate additive)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

L54 ANSWER 11 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:73421 HCAPLUS
DN 134:103344
TI Method for reducing voltage delay in an alkali metal electrochemical cell activated with a nonaqueous electrolyte having a sulfate additive
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO U.S., 13 pp., Cont.-in-part of U.S. 6,013,394.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6180283	B1	20010130	US 1999-460035	19991213 <--
	US 6013394	A	20000111	US 1998-9557	19980120 <--
	US 6265106	B1	20010724	US 2000-491355	20000126 <--
	US 6350546	B1	20020226	US 2000-519534	20000306 <--
	CA 2316438	A1	20010613	CA 2000-2316438	20000818 <--
	EP 1109244	A2	20010620	EP 2000-311118	20001213 <--
	EP 1109244	A3	20020724		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001176548	A	20010629	JP 2000-378551	20001213 <--
	TW 478201	B	20020301	TW 2000-89126603	20001213 <--
	US 2001006751	A1	20010705	US 2001-772680	20010130 <--
	US 6444360	B2	20020903		
PRAI	US 1998-9557	A	19980120 <--		
	US 1999-460035	A2	19991213 <--		
	US 2000-491355	A2	20000126 <--		
	US 2000-519534	A	20000306 <--		

OS MARPAT 134:103344
AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one organic sulfate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane and a sulfate additive having at least one unsatd. hydrocarbon containing a C(sp2 or sp3)-C(sp3) bond unit having the C(sp3) carbon directly connected to the -OSO3- functional group, or an silyl sulfate or a tin sulfate.
IC ICM H01M0004-60
INCL 429215000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** alkali metal voltage delay lowering

IT **Primary batteries**
(lithium; method for reducing voltage delay in alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)
IT **Battery electrolytes**
(method for reducing voltage delay in alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)
IT 60-29-7, Ether, uses 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 120-94-5, n-Methylpyrrolidine 127-19-5, Dimethyl acetamide 143-24-8, TeTraglyme 463-79-6D, Carbonic acid, dialkyl derivative, uses 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 2923-17-3 2923-20-8 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane **7439-93-2**, Lithium, uses 7791-03-9, Lithium perchlorate 11099-11-9, **Vanadium oxide** 11105-02-5, Silver **vanadium oxide** 12057-24-8, Lithia, uses 12789-09-2, Copper **Vanadium oxide** 12798-95-7 13453-75-3, Lithium fluorosulfate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1 132404-42-3 181183-66-4, Copper silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(method for reducing voltage delay in alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(method for reducing voltage delay in alkali metal electrochem. cell activated with nonaq. electrolyte having sulfate additive)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abraham	1990			US 4934922	HCAPLUS
Anon	1997			JP 09245833	HCAPLUS
Blomgren	1984			US 4444855	HCAPLUS
Clark	1984			US 4489144	HCAPLUS
Connelly	1984			US 4482616	HCAPLUS
Connelly	1986			US 4612265	HCAPLUS
Crespi	1993			US 5221453	HCAPLUS
Daifuku	1990			US 4957833	HCAPLUS
Hoffman	1990			US 4894302	HCAPLUS
Klemann	1977			US 4060674	HCAPLUS
Maricle	1971			US 3567515	
Takeuchi	1995			US 5472810	HCAPLUS

Tinker	1985		US 4520084	HCAPLUS
Toyosawa	1990		US 4906538	HCAPLUS

L54 ANSWER 12 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:28738 HCAPLUS
DN 134:88772
TI Nonaqueous secondary lithium **battery** containing carbon fibers in the anode
IN Yamaguchi, Akira; Omaru, Atsuo; Nagamine, Masayuki
PA Sony Corporation, Japan
SO Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1067615	A1	20010110	EP 2000-113696	20000628 <--
	EP 1067615	B1	20030813		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001015170	A	20010119	JP 1999-183607	19990629 <--
	TW 465132	B	20011121	TW 2000-89112224	20000621 <--
	CA 2312530	A1	20001229	CA 2000-2312530	20000627 <--
	US 6440609	B1	20020827	US 2000-605677	20000628 <--
	CN 1284758	A	20010221	CN 2000-122731	20000629 <--
PRAI	JP 1999-183607	A	19990629 <--		

AB The title **battery** has improved cell characteristics at a low temperature The anode contains fiber carbon, which enables smooth doping and dedoping of lithium ions at a low temperature Accordingly, the **internal resistance** value at a low temperature is reduced and the cell capacity value is increased.
IC ICM H01M0010-40
ICS H01M0004-58; H01M0004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium **battery** anode carbon fiber
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; nonaq. secondary lithium **battery** containing carbon fibers in anode)
IT **Secondary batteries**
(lithium; nonaq. secondary lithium **battery** containing carbon fibers in anode)
IT **Battery anodes**
Coal tar pitch
(nonaq. secondary lithium **battery** containing carbon fibers in anode)
IT Carbon fibers, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(nonaq. secondary lithium **battery** containing carbon fibers in anode)
IT 24937-79-9, Pvdf
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; nonaq. secondary lithium **battery** containing carbon fibers in anode)
IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate
1314-62-1, Vanadium pentoxide, uses
1317-33-5, Molybdenum sulfide mos2, uses 2550-62-1, Lithium methanesulfonate 7447-41-8, Lithium chloride, uses 7550-35-8, Lithium

bromide 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 9003-07-0, Polypropylene 12039-13-3, Titanium sulfide tis2 12058-18-3, Molybdenum selenide mose2 12190-79-3, Cobalt lithium oxide colio2 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 17347-95-4, Lithium hexafluorosilicate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 132404-42-3
RL: DEV (Device component use); USES (Uses)
(nonaq. secondary lithium **battery** containing carbon fibers in anode)

IT **1314-62-1, Vanadium pentoxide**, uses
RL: DEV (Device component use); USES (Uses)
(nonaq. secondary lithium **battery** containing carbon fibers in anode)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abe, H	1999			US 5856043 A	HCAPLUS
Matsushita Electric Ind	1997			EP 0803926 A	HCAPLUS
Petoca Ltd	1995			EP 0644603 A	HCAPLUS
Takeuchi, E	1995			US 5443928 A	HCAPLUS
Toray Industries	1998			EP 0817293 A	HCAPLUS

L54 ANSWER 13 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:635203 HCAPLUS
DN 133:196043
TI Hydrogen fluoride additive for nonaqueous electrolyte in alkali metal electrochemical cells
IN Takeuchi, Esther S.; Leising, Randolph A.
PA Wilson Greatbatch Ltd., USA
SO U.S., 10 pp.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6117591	A	20000912	US 1998-85212	19980527 <--
PRAI	US 1998-85212		19980527 <--		

AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of hydrogen fluoride to the nonaq. electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane and hydrogen fluoride having LiAsF6 or LiPF6 dissolved therein.

IC ICM H01M0004-58
INCL 429231950
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST hydrogen fluoride additive nonaq electrolyte alkali metal **battery**
IT **Battery electrolytes**
(hydrogen fluoride additive for nonaq. electrolyte in alkali metal

electrochem. cells)
IT **Primary batteries**
(lithium; hydrogen fluoride additive for nonaq. electrolyte in alkali metal electrochem. cells)
IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 463-79-6D, Carbonic acid, dialkyl ester, uses 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, uses 2923-17-3 2923-20-8 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane **7439-93-2**, Lithium, uses 7791-03-9, Lithium perchlorate 11105-02-5, Silver **vanadium oxide** 12057-24-8, Lithia, uses 13453-75-3, Lithium fluorosulfate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1 132404-42-3
RL: DEV (Device component use); USES (Uses)
(hydrogen fluoride additive for nonaq. electrolyte in alkali metal electrochem. cells)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(hydrogen fluoride additive for nonaq. electrolyte in alkali metal electrochem. cells)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1990			JP 02144860	HCAPLUS
Anon	1995			JP 07282848	HCAPLUS
Anon	1995			JP 07302613	HCAPLUS
Carr	1981			US 4273839	
Gordon	1987			US 4663249	HCAPLUS
Gordon	1987			US 4670358	HCAPLUS
Maccarthy	1974			US 3825445	HCAPLUS
Nagashima	1989			US 4814241	HCAPLUS
Takeuchi	1995			US 5472810	HCAPLUS

L54 ANSWER 14 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:398848 HCAPLUS
DN 133:61282
TI Effects of the method of cathode synthesis on the **internal resistance** of lithium/silver **vanadium oxide batteries**
AU Chen, Kevin; Crespi, Ann M.; Schmidt, Craig L.; Skarstad, Paul M.
CS Medtronic, Inc., Minneapolis, MN, 55430, USA

SO Proceedings - Electrochemical Society (2000), 99-25, 401-407
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB Silver **vanadium oxide**(Ag2V4O11, SVO) is the active cathode material in lithium primary cells for powering implantable cardioverter defibrillators. The SVO material is synthesized either by a decomposition method at 380° or by a combination method at 500 °C. The resulting materials have drastically different morphologies. The rate capability and cell resistance of lithium cells with these SVO cathode materials have been characterized. The sources of cell resistance were studied with cells having a built-in lithium reference electrode at various depths of discharge. The transformation of DSVO into a CSVO-like material is also discussed.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 63, 72
ST cathode elec resistance primary **battery**; lithium silver **vanadium oxide battery** defibrillator
IT Electric **resistance**
(effects of the method of cathode synthesis on the **internal resistance** of lithium/silver **vanadium oxide batteries**)
IT **Primary batteries**
(lithium; effects of the method of cathode synthesis on the **internal resistance** of lithium/silver **vanadium oxide batteries**)
IT Heart, disease
(ventricular fibrillation, defibrillators for; effects of the method of cathode synthesis on the **internal resistance** of lithium/silver **vanadium oxide batteries**)
IT 12026-36-7, Silver **vanadium oxide** ag2v4o11
RL: DEV (Device component use); USES (Uses)
(effects of the method of cathode synthesis on the **internal resistance** of lithium/silver **vanadium oxide batteries**)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1982			US 4310609	HCAPLUS
Crespi, A	1993			US 5221453	HCAPLUS
Crespi, A				Patents Pending	
Howard, W	1995			US 5439760	HCAPLUS
Liang, C	1983			US 4391729	HCAPLUS
Takeuchi, E	1986		268	Proc 32nd Power Sour	HCAPLUS
Zandbergen, H	1994	110	167	J Solid State Chem	HCAPLUS

L54 ANSWER 15 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:254765 HCAPLUS
DN 132:281623
TI Secondary lithium **battery** using lithium cobaltate or lithium nickelate cathode active mass
IN Nemoto, Hiroshi; Takahashi, Michio; Kito, Yoshinobu
PA Ngk Insulators, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000113884	A	20000421	JP 1998-279853	19981001 <--
	JP 3566106	B2	20040915		
	JP 2004235166	A	20040819	JP 2004-146414	20040517 <--
PRAI	JP 1998-279853	A3	19981001 <--		

AB The **battery** uses the title active mass mixed with B, Bi, Mo, P, Cr, V, and/or W. The active mass allows the **battery** to have decreased **internal resistivity**, providing high output power, capacity, and cycle performance.

IC ICM H01M0004-58
ICS C04B0035-64; H01M0004-02; H01M0004-04; H01M0004-62; H01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST cobaltate lithium **battery** cathode element addn; nickelate lithium **battery** cathode element addn; boron mixed oxide cathode lithium **battery**; bismuth mixed oxide cathode lithium **battery**; molybdenum mixed oxide cathode lithium **battery**; phosphorus mixed oxide cathode lithium **battery**; chromium mixed oxide cathode lithium **battery**; vanadium mixed oxide cathode lithium **battery**; tungsten mixed oxide cathode lithium **battery**

IT **Battery cathodes**
(Li **battery** using element-mixed LiCoO2 or LiNiO2 cathode active mass for decreased **internal resistivity**)

IT **Secondary batteries**
(lithium; Li **battery** using element-mixed LiCoO2 or LiNiO2 cathode active mass for decreased **internal resistivity**)

IT 12031-65-1P, Lithium nickel oxide (LiNiO2) 12190-79-3P, Cobalt lithium oxide (CoLiO2) 264151-99-7P, Cobalt lithium tungsten oxide (CoLiW0.01O2) 264152-00-3P, Cobalt lithium tungsten oxide (CoLiW0.1O2) 264152-01-4P, Cobalt lithium tungsten oxide (CoLiW0.2O2) 264152-02-5P, Cobalt lithium molybdenum oxide (CoLiMo0.01O2) 264152-03-6P, Cobalt lithium molybdenum oxide (CoLiMo0.1O2) 264152-04-7P, Cobalt lithium molybdenum oxide (CoLiMo0.2O2) 264152-05-8P, Cobalt lithium borate oxide (CoLi(BO3)0.01O1.97) 264152-06-9P, Cobalt lithium borate oxide (CoLi(BO3)0.1O1.7) 264152-07-0P, Cobalt lithium borate oxide (CoLi(BO3)0.2O1.4) 264152-08-1P, Lithium nickel borate oxide (LiNi(BO3)0.01O1.97) 264152-09-2P, Lithium nickel borate oxide (LiNi(BO3)0.1O1.7) 264152-10-5P, Lithium nickel borate oxide (LiNi(BO3)0.2O1.4) 264152-11-6P, Lithium nickel **vanadium oxide** (LiNiV0.01O2) 264152-12-7P, Lithium nickel **vanadium oxide** (LiNiV0.1O2) 264152-13-8P, Lithium nickel **vanadium oxide** (LiNiV0.2O2)
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(Li **battery** using element-mixed LiCoO2 or LiNiO2 cathode active mass for decreased **internal resistivity**)

L54 ANSWER 16 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:34689 HCAPLUS
DN 132:80952
TI Inorganic and organic nitrate additives for nonaqueous electrolyte in alkali metal **batteries**
IN Gan, Hong; Takuchi, Ester
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 26 pp.
CODEN: EPXXDW
DT **Patent**
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 971432	A1	20000112	EP 1999-305473	19990709 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6060184	A	20000509	US 1998-112597	19980709 <--
	AU 9939108	A1	20000203	AU 1999-39108	19990708 <--
	JP 2000040523	A	20000208	JP 1999-195171	19990709 <--
PRAI	US 1998-112597	A	19980709 <--		

OS MARPAT 132:80952

AB A nonaq. alkali metal, solid cathode **battery** capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity** has ≥1 nitrate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane, and an alkali metal nitrate, alkaline earth metal nitrate, and/or an organic alkyl nitrate additive.

IC ICM H01M0010-40
ICS H01M0006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** electrolyte inorg org nitrate additive

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(conductive additive; inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT **Battery electrolytes**
Primary batteries
(inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT Esters, uses
Ethers, uses
RL: DEV (Device component use); USES (Uses)
(inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT Nitrates, uses
RL: MOA (Modifier or additive use); USES (Uses)
(inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT Alkali metal compounds
Alkaline earth compounds
RL: MOA (Modifier or additive use); USES (Uses)
(nitrates; inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 12597-68-1, Stainless steel, uses
RL: MOA (Modifier or additive use); USES (Uses)
(conductive additive; inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide

143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, uses 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses 1344-70-3, Copper oxide 2923-17-3 2923-20-8 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane **7439-93-2**, Lithium, uses 7791-03-9, Lithium perchlorate 11104-61-3, Cobalt oxide 11105-02-5, Silver **vanadium oxide** 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, Titanium disulfide 12068-85-8, Iron disulfide 12789-09-2, Copper **vanadium oxide** 12798-95-7 13453-75-3, Lithium fluorosulfonate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 51311-17-2, Carbon fluoride 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1, Benzenesulfonic acid, pentafluoro-, lithium salt 132404-42-3 181183-66-4, Copper silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 543-29-3, IsoButyl nitrate 627-13-4, Propyl nitrate 926-05-6, tert-Butyl nitrate 928-45-0, Butyl nitrate 1712-64-7, IsoPropyl nitrate 2104-20-3, Phenyl nitrate 7631-99-4, Sodium nitrate, uses 7757-79-1, Potassium nitrate, uses 7790-69-4, Lithium nitrate 10124-37-5, Calcium nitrate 10377-60-3, Magnesium nitrate 15285-42-4, Benzyl nitrate
RL: MOA (Modifier or additive use); USES (Uses)
(inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(inorg. and organic nitrate additives for nonaq. electrolyte in alkali metal **batteries**)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1977			US 4060674 A	HCAPLUS
Anon	1978			FR 2374749 A	HCAPLUS
Anon	1978			DE 2745051 A	HCAPLUS
Anon	1978			JP 53075435 A	HCAPLUS
Anon	1978			BE 860068 A	HCAPLUS
Anon	1980			CA 1079351 A	HCAPLUS
Anon	1980			GB 1561933 A	HCAPLUS
Anon	1982			GB 2086644 A	HCAPLUS
Anon	1982			CH 630748 A	HCAPLUS
Anon	1983			JP 58056232 B	HCAPLUS
Anon	1983			JP 58214281 A	HCAPLUS
Anon	1984			JP 1221388 C	
Anon	1985			IT 1088062 B	
Anon	1989			HK 66689 A	

Anon	1995		JP 07022068 A	HCAPLUS
Anon	1996		WO 9642116 A	HCAPLUS
Anon	1997		US 5691083 A	HCAPLUS
Anon	1997		AU 6476596 A	
Anon	1998		EP 0829911 A	HCAPLUS
Anon	1998		EP 0832500 A	HCAPLUS
Anon	1998		JP 10106626 A	HCAPLUS
Anon	1998		AU 3754897 A	
Anon	1998		US 5776635 A	HCAPLUS
Anon	1999		JP 11507761 T	HCAPLUS
Anon	1999		AU 702111 B	HCAPLUS
Anon	1999		AU 709614 B	HCAPLUS

L54 ANSWER 17 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:31275 HCAPLUS
DN 132:52440
TI Organic sulfate additives for nonaqueous electrolyte in alkali metal **batteries**
IN Gan, Hong; Takuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO U.S., 14 pp.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6013394	A	20000111	US 1998-9557	19980120 <--
	US 6180283	B1	20010130	US 1999-460035	19991213 <--
	US 6265106	B1	20010724	US 2000-491355	20000126 <--
	US 6350546	B1	20020226	US 2000-519534	20000306 <--
	US 2001006751	A1	20010705	US 2001-772680	20010130 <--
	US 6444360	B2	20020903		
PRAI	US 1998-9557	A	19980120 <--		
	US 1999-460035	A2	19991213 <--		
	US 2000-491355	A2	20000126 <--		

AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one organic sulfate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane and a dialkyl sulfate additive.

IC ICM H01M0006-14
INCL 429325000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** org sulfate additive nonaq electrolyte
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(conductive additive; organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)
IT **Battery anodes**
Battery cathodes
Battery electrolytes
Primary batteries

(organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(conductive additive; organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, uses 2923-17-3 2923-20-8 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy, 2-methoxy-ethane **7439-93-2**, Lithium, uses 7791-03-9, Lithium perchlorate 11099-11-9, **Vanadium oxide** 11105-02-5, Silver **vanadium oxide** 12789-09-2, Copper **vanadium oxide** 12798-95-7 13453-75-3, Lithium fluorosulfonate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1 132404-42-3 181183-66-4, Copper silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 18306-29-1, Bis(trimethylsilyl)sulfate
RL: MOA (Modifier or additive use); USES (Uses)
(organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 12597-68-1, Stainless steel, uses
RL: MOA (Modifier or additive use); USES (Uses)
(powder, conductive additive; organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(organic sulfate additives for nonaq. electrolyte in alkali metal **batteries**)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Blomgren	1984			US 4444855	HCAPLUS
Clark	1984			US 4489144	HCAPLUS
Connolly	1984			US 4482616	HCAPLUS
Connolly	1986			US 4612265	HCAPLUS
Daifuku	1990			US 4957833	HCAPLUS
Maricle	1971			US 3567515	

Mitsubishi Chem	1997			JP 09-245833 A	HCAPLUS
Takeuchi	1995			US 5472810	HCAPLUS
Tinker	1985			US 4520084	HCAPLUS
Toyosawa	1990			US 4906538	HCAPLUS

L54 ANSWER 18 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:12788 HCAPLUS
DN 132:66636
TI Organic nitrite additives for nonaqueous electrolyte in alkali metal **batteries**
IN Dan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 969539	A1	20000105	EP 1999-305166	19990630 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6027827	A	20000222	US 1998-108143	19980630 <--
	AU 9933931	A	20000113	AU 1999-33931	19990608 <--
	JP 2000030717	A	20000128	JP 1999-184142	19990629 <--
PRAI	US 1998-108143	A	19980630 <--		

OS MARPAT 132:66636
AB An alkali metal, solid cathode, nonaq. **battery** is capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity** by the addition of at least one nitrite additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane, and an alkyl nitrite additive.
IC ICM H01M0006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST **battery** electrolyte org nitrite additive; implantable medical device **battery**
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)
IT **Primary batteries**
(lithium; organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)
IT **Battery electrolytes**
(organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)
IT Esters, uses
Lactams
Lactones
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)

IT 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses 1344-70-3, Copper oxide 11104-61-3, Cobalt oxide 11105-02-5, Silver **vanadium oxide** 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, Titanium disulfide 12068-85-8, Iron disulfide 12789-09-2, Copper **vanadium oxide** 51311-17-2, Carbon fluoride 181183-66-4, Copper silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(cathode; organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)

IT **7439-93-2**, Lithium, uses 29935-35-1, Lithium hexafluoroarsenate
RL: DEV (Device component use); USES (Uses)
(organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)

IT 60-29-7, Ether, uses 108-32-7, Propylene carbonate 110-71-4
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)

IT 540-80-7, tert-Butyl nitrite 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 12597-68-1, Stainless steel, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(organic nitrite additives for nonaq. electrolyte in alkali metal **batteries**)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1970			US 3489611 A	HCAPLUS
Anon	1977			US 4060674 A	HCAPLUS
Anon	1978			FR 2374749 A	HCAPLUS
Anon	1978			DE 2745051 A	HCAPLUS
Anon	1978			JP 53075435 A	HCAPLUS
Anon	1978			BE 860068 A	HCAPLUS
Anon	1980			CA 1079351 A	HCAPLUS
Anon	1980			GB 1561933 A	HCAPLUS
Anon	1980			DE 2834485 A	HCAPLUS
Anon	1981			US 4264689 A	HCAPLUS
Anon	1981			US 4298663 A	HCAPLUS
Anon	1981			AU 6377080 A	
Anon	1981			BR 8007078 A	HCAPLUS
Anon	1981			BE 885964 A	HCAPLUS
Anon	1982			CH 630748 A	HCAPLUS
Anon	1983			CA 1149450 A	HCAPLUS
Anon	1983			JP 58056232 B	HCAPLUS
Anon	1984			JP 1221388 C	
Anon	1985			IT 1088062 B	
Anon	1985			AU 542946 B	HCAPLUS

Anon	1988		EP 0291776 A	HCAPLUS
Anon	1988		US 4730070 A	HCAPLUS
Anon	1988		US 4782171 A	HCAPLUS
Anon	1988		JP 63307887 A	HCAPLUS
Anon	1989		US 4866191 A	HCAPLUS
Anon	1990		CA 1276939 A	HCAPLUS
Anon	1992		DE 3869828 A	
Anon	1993		JP 05101846 A	HCAPLUS
Anon	1998		AU 2591397 A	
Anon	1998		WO 9800877 A	HCAPLUS

L54 ANSWER 19 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:380961 HCAPLUS
DN 131:7559
TI Phosphonate additives for nonaqueous electrolyte in alkali metal **batteries**
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 917224	A1	19990519	EP 1998-308689	19981023 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6096447	A	20000801	US 1997-964492	19971105 <--
	AU 9891336	A	19990527	AU 1998-91336	19981104 <--
	JP 11219711	A	19990810	JP 1998-313255	19981104 <--
PRAI	US 1997-964492	A	19971105 <--		

AB An alkali metal, solid cathode, nonaq. **battery** capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one phosphonate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane and an alkyl phosphonate additive.

IC ICM H01M0006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** electrolyte additive phosphonate
IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)
IT **Primary batteries**
(lithium; phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)
IT **Battery electrolytes**
(phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)
IT 1313-13-9, Manganese dioxide, uses 1344-70-3, Copper oxide **7439-93-2**, Lithium, uses 11099-02-8, Nickel oxide 11104-61-3, Cobalt oxide 11105-02-5, Silver **vanadium oxide**

11126-12-8, Iron sulfide 12039-13-3, Titanium disulfide 12068-85-8, Iron disulfide 12789-09-2, Copper **vanadium oxide** 12798-95-7 51311-17-2, Carbon fluoride 181183-66-4, Copper Silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 67-68-5, Dmso, uses 68-12-2, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-32-7, Propylene carbonate 109-99-9, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, n-Methylpyrrolidone, uses 2923-20-8, Lithium perfluoroethanesulfonate 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy, 2-methoxyethane 7791-03-9, Lithium perchlorate 13453-75-3, Fluorosulfuric acid, lithium salt 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methylpropyl carbonate 90076-65-6 115028-88-1 132404-42-3 225781-62-4
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)

IT 683-08-9, Diethyl methylphosphonate 756-79-6, Dimethyl methylphosphonate 762-04-9, Diethyl phosphonate 773-47-7, Dimethyl benzylphosphonate 868-85-9, Dimethyl phosphonate 1610-33-9, Ethyl methylphosphonate 1809-19-4, Dibutyl phosphonate 1809-21-8, Dipropyl phosphonate 2404-73-1, Dibutyl methylphosphonate 4712-55-4, Diphenyl phosphonate 6410-56-6, Dipropyl methylphosphonate 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7526-26-3, Diphenyl methylphosphonate 7782-42-5, Graphite, uses 12597-68-1, Stainless steel, uses 13598-36-2, Phosphonic acid 17176-77-1, Dibenzyl phosphonate 19236-58-9, Dibenzyl methylphosphonate 54963-39-2
RL: MOA (Modifier or additive use); USES (Uses)
(phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(phosphonate additives for nonaq. electrolyte in alkali metal **batteries**)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Asahi Chem Ind Co Ltd	1990			JP 02244565 A	HCAPLUS
Comp Generale Electrici	1979			FR 2415883 A	HCAPLUS
Greatbatch W Ltd	1997			EP 0803924 A	HCAPLUS

Kao Corp	1998		JP 10223257 A	HCAPLUS
Matsushita Electric Ind	1993		JP 05190205 A	HCAPLUS
Mitsui Petrochem Ind Lt	1996		JP 08022839 A	HCAPLUS

L54 ANSWER 20 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:344830 HCAPLUS
DN 130:340670
TI Phosphate additives for nonaqueous electrolyte in alkali metal electrochemical cells
IN Gan, Hong; Takeuchi, Esther S.
PA Wilson Greatbatch Ltd., USA
SO Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 918364	A1	19990526	EP 1998-308674	19981023 <--
	EP 918364	B1	20020327		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6068950	A	20000530	US 1997-974305	19971119 <--
	AU 9892438	A	19990610	AU 1998-92438	19981117 <--
	JP 11250919	A	19990917	JP 1998-328649	19981118 <--
	US 6274269	B1	20010814	US 2000-491399	20000125 <--
PRAI	US 1997-974305	A	19971119 <--		

AB An alkali metal, solid cathode, nonaq. electrochem. cell capable of delivering high current pulses, rapidly recovering its open circuit voltage and having high **current capacity**, is disclosed. The stated benefits are realized by the addition of at least one phosphate additive to an electrolyte comprising an alkali metal salt dissolved in a mixture of a low viscosity solvent and a high permittivity solvent. A preferred solvent mixture includes propylene carbonate, dimethoxyethane and an alkyl phosphate additive.
IC ICM H01M0010-40
ICS H01M0010-44
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** electrolyte phosphate additive
IT **Primary batteries**
(lithium; phosphate additives for nonaq. electrolyte in alkali metal electrochem. cells)
IT **Battery electrolytes**
(phosphate additives for nonaq. electrolyte in alkali metal electrochem. cells)
IT 1313-13-9, Manganese dioxide, uses **7439-93-2**, Lithium, uses 11099-02-8, Nickel oxide 11104-61-3, Cobalt oxide 11105-02-5, Silver **vanadium oxide** 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, Titanium disulfide 12068-85-8, Iron disulfide 12789-09-2, Copper **vanadium oxide** 12798-95-7 181183-66-4, Copper Silver **vanadium oxide**
RL: DEV (Device component use); USES (Uses)
(phosphate additives for nonaq. electrolyte in alkali metal electrochem. cells)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(phosphate additives for nonaq. electrolyte in alkali metal electrochem. cells)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Asahi Chem Ind Co Ltd	1990			JP 02244565 A	HCAPLUS
Canon Kk	1994			EP 0631339 A	HCAPLUS
Greatbatch W Ltd	1995			EP 0662729 A	HCAPLUS
Greatbatch W Ltd	1997			EP 0803924 A	HCAPLUS
Hitachi Maxell	1996			EP 0698933 A	HCAPLUS
Sony Corp	1996			EP 0696077 A	HCAPLUS
Takeuchi, E	1997			US 5614331 A	HCAPLUS

L54 ANSWER 21 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:723805 HCAPLUS
DN 128:24880
TI The 200 V 2 kW-h energy storage multicell system with 25 W-h Li/LiV3O8 single cells
AU Takei, Katsuhito; Terada, Nobuyuki; Iwahori, Toru; Tanaka, Toshikatsu; Mishima, Hiromitsu; Takeuchi, Ken-ichi
CS Komae, Iwato-kita, Central Research Institute of Electric Power Industry (CRIEPI), Tokyo 201, 2-11-1, Japan
SO Journal of Power Sources (**1997**), 68(1), 78-81
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier
DT Journal
LA English
AB A 200 V, 2 kW-h Li/LiV3O8 multicell system was constructed by seventy-seven 25 W-h single component cells in series connection and was operated under connection with a com. power line. The discharge power of 1.94 kW-h and the energy efficiency of >93% were demonstrated. The rate capability of this multicell system was poor compared with that of a single cell. The **internal resistance** of the system resulted in the iR loss, and the safely set operating voltage limits for the system reduced the output energy of individual cells. The non-uniformity of the operating voltage and of the state-of-charge for all component cells were also analyzed in addition to the local temperature rise in the stack.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium **vanadium oxide battery** system
IT **Secondary batteries**
(lithium/lithium **vanadium oxide**; design, construction, and performance of 200 V, 2 kW-h energy storage multicell system with 25 W-h Li/LiV3O8 single cells)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Pistoia, G	1985	132	281	J Electrochem Soc	HCAPLUS
Pistoia, G	1989	27	35	J Power Sources	HCAPLUS
Takei, K	1992	92-15	169	Proc Symp High Power	HCAPLUS
Terada, N	1992		3C08	Proc 33rd Battery Sy	
Wadsley, A	1957	132	261	Acta Crystallogr	
Wainwright, D	1991	34	31	J Power Sources	HCAPLUS

L54 ANSWER 22 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:561981 HCAPLUS
DN 127:222901
TI Resistance modeling of lithium-silver **vanadium oxide batteries**
AU Norton, John D.; Schmidt, Craig L.
CS Promeon Division, Medtronic, Inc., Brooklyn Center, MN, 55430, USA
SO Proceedings - Electrochemical Society (**1997**), 97-18(Batteries for Portable Applications and Electric Vehicles), 389-397
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB The authors have mapped the **internal resistance** of a lithium-silver **vanadium oxide** (Li/Ag2V4O11) cell as a function of c.d., pulse duration, and depth of discharge. For **current densities** and pulse lengths short enough to avoid the onset of mass transfer limitations, **resistance** is dominated by ohmic components, such as those associated with contact **resistances** and the elec. **resistance** of **battery** components. However, mass transfer limitations result in rapidly increasing **resistance** with increasing c.d. and pulse length. The point at which this transition occurs depends on the extent of discharge of the cell. Maximum **battery** power capability has similarly been mapped. The Li/Ag2V4O11 primary **batteries** serve as power sources for implantable medical devices requiring high rates of power delivery, e.g., implantable cardioverter defibrillators.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST lithium silver **vanadium oxide battery resistance**; modeling **battery internal resistance**
IT **Primary batteries**
(lithium-silver **vanadium oxide**; modeling of **internal resistance** of lithium-silver **vanadium oxide batteries**)
IT Electric **resistance**
Simulation and Modeling, physicochemical
(modeling of **internal resistance** of lithium-silver **vanadium oxide batteries**)
RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Crespi, A	1993			US 5221453	HCAPLUS
Crespi, A	1993	43-44	119	J Power Sources	
Crespi, A	1995		349	Power Sources 15	HCAPLUS
Holmes, C	1987	6	64	Progress in Batterie	HCAPLUS
Howard, W	1995			US 5439760	HCAPLUS
Liang, C	1982			US 4310609	HCAPLUS
Liang, C	1982			US 4391729	HCAPLUS
Post, C	1992			US 5147737	HCAPLUS
Skarstad, P	1993		167	Power Sources 14	HCAPLUS
Skarstad, P	1997		151	The Proceedings of t	HCAPLUS
Takeuchi, E	1987		195	Extended Abstracts o	
Takeuchi, E	1988	135	2691	J Electrochem Soc	HCAPLUS
Takeuchi, E	1987	21	133	J Power Sources	HCAPLUS
Takeuchi, E	1986			Proceedings of the 3	

L54 ANSWER 23 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 1997:151393 HCAPLUS
DN 126:174248
TI Secondary nonaqueous **batteries** using lithium containing silicon oxide anodes
IN Tawara, Kensuke; Iwasaki, Fumiharu; Yahagi, Seiji; Sakata, Akihito; Sakai, Tsugio; Ishikawa, Hideki; Takasugi, Shinichi
PA Seiko Instr & Electronics, Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09007638	A	19970110	JP 1995-156547	19950622 <--
	WO 9701193	A1	19970109	WO 1996-JP1744	19960624 <--
	W: NO, US				
	RW: DE, FI, FR, GB, SE				
	EP 840386	A1	19980506	EP 1996-918893	19960624 <--
	R: DE, FR, GB, SE, FI				
	EP 1494302	A1	20050105	EP 2004-77595	19960624 <--
	R: DE, FR, GB, SE, FI				
PRAI	JP 1995-156547	A	19950622 <--		
	EP 1996-918893	A3	19960624 <--		
	WO 1996-JP1744	W	19960624 <--		

AB The **batteries** use anodes composed of LixSiOy, where 1.5 ≤x ≤4.0 and 0 <y <2. The cathodes are preferably Li containing transition metal oxide LiaMbM'cOd (M = Co, Ni, Mn, Fe, V, W, Nb, and/or Ti; M' = B, Si, P, Mg, Zn, and/or Cu; 0 <a ≤1.15, 0.8 ≤(b+c)≤1.3, 0 ≤c, 1.7 ≤d ≤2.5) or LimMnOn (0 ≤m ≤4, 1 ≤n ≤3). These **batteries** have low **internal resistance** and long cycle life.
IC ICM H01M0010-40
ICS H01M0004-02; H01M0004-04; H01M0004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** lithium silicon oxide anode
IT **Battery anodes**
(lithium containing silicon oxide anodes for secondary **batteries**)
IT 1313-13-9, Manganese dioxide, uses **1314-62-1**, **Vanadium pentoxide**, uses 154471-92-8, Cobalt lithium borate oxide (Co0.9Li(BO3)0.1O1.7) 186823-99-4, Cobalt lithium oxide silicate (Co0.9LiO1.65(SiO4)0.1)
RL: DEV (Device component use); USES (Uses)
(cathodes for secondary **batteries** using lithium containing silicon oxide anodes)
IT 113443-18-8, Silicon monoxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(in manufacture of lithium containing silicon oxide anodes for secondary **batteries**)
IT 186823-97-2, Lithium silicon oxide (Li1.5-4SiO0-2) 186823-98-3, Lithium oxide silicide (Li4OSi) 186824-00-0, Lithium oxide silicide (Li3.6OSi)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(lithium containing silicon oxide anodes for secondary **batteries**)
IT **1314-62-1**, **Vanadium pentoxide**, uses
RL: DEV (Device component use); USES (Uses)
(cathodes for secondary **batteries** using lithium containing silicon oxide anodes)
RN 1314-62-1 HCAPLUS

CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 24 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:846815 HCAPLUS
DN 123:233385
TI Equalizing charge rates of individual **battery** cells
IN Brodd, Ralph J.
PA Valence Technology, Inc., USA
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9521467	A1	19950810	WO 1995-US1041	19950126 <--
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US				
	RW: KE, MW, SD, SZ, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9516913	A	19950821	AU 1995-16913	19950126 <--
	US 5498490	A	19960312	US 1995-426481	19950420 <--
PRAI	US 1994-190625	A	19940202 <--		
	WO 1995-US1041	W	19950126 <--		

AB Charge rates of individual **battery** cells are equalized and **battery** safety is increased by limiting the amount of current that will flow through the **battery** in the event of a short circuit either external to or **internal** to the **battery**. A solid-polymer **battery** having a cathode layer, an anode layer, an ionically conductive polymeric electrolyte between these layers, a 1st electrode elec. connected to the cathode layer, and a 2nd electrode elec. connected to the anode layer, has addnl. an electronically conductive polymeric layer situated between the 1st and 2nd electrodes and having a **resistivity** within a range so at to limit current flow-through the **battery** in case of the occurrence of a short circuit between the cathode and the anode layer, and to decrease a terminal voltage of the **battery** no more than few percent as compared to what the terminal voltage of the **battery** would be within the electronically conductive polymeric layer.

IC ICM H01M0006-18
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **battery** cell charge rate equalization safety
IT **Batteries, secondary**
(equalizing charge rates of individual cells of lithium-**vanadium oxide**)
IT Carbon black, uses
RL: NUU (Other use, unclassified); USES (Uses)
(in electronically conductive polymeric layer in lithium-**vanadium oxide batteries**)
IT Safety
(of lithium-**vanadium oxide batteries**)
IT 9003-01-4, Polyacrylic acid 9003-20-7, Polyvinyl acetate
RL: NUU (Other use, unclassified); USES (Uses)
(in electronically conductive layer in lithium-**vanadium**

oxide batteries)
IT 7440-06-4, Platinum, uses 7440-44-0, Carbon, uses 7440-57-5, Gold, uses 7782-42-5, Graphite, uses 12070-12-1, Tungsten carbide
RL: NUU (Other use, unclassified); USES (Uses)
(in electronically conductive polymeric layer in lithium-**vanadium oxide batteries**)

L54 ANSWER 25 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1995:232648 HCAPLUS
DN 122:35109
TI **Internal resistance** and cathode content in silver borovanadate **batteries**
AU Arof, A. K.
CS Physics Division, Centre for Foundation Studies in Science, University of Malaya, Kuala Lumpur, 59100, Malay.
SO Journal of Power Sources (**1994**), 52(1), 129-33
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier
DT Journal
LA English
AB Silver borovanadate (SBV) glass with the stoichiometric composition 60 AgI-20 Ag2O-2 B2O3-18 V2O5 is prepared by rapidly quenching a melt of the constituent chems. at liquid-nitrogen temperature The glassy nature of the sample is confirmed by X-ray diffraction. IR spectroscopy revealed bands attributed to V-O stretching at 1008 cm-1, V:O vibrations at 920 cm-1, B-O bond stretching of tetrahedral BO4 units at 850 cm-1, and B-O bond stretching of trigonal BO3 units with a non-bridging oxygen (NBO) atom at 1230 cm-1. The vibration of the boroxol ring is observed at 1400 cm-1. The elec. conductivity of the sample is 1.2+10-4 S cm-1 at 300 K. The transference number, as determined by the electromotive force method, is at least 0.98. The glass was used to fabricate several Ag/I2 **batteries** and the **battery** with a cathode composition that consists of five-parts iodine, five-parts carbon and one-part glass is the best in terms of a low **internal resistance** and a longer discharge lifetime.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST silver borovanadate **battery** cathode
IT Glass, oxide
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(silver borovanadate; **internal resistance** and cathode content in silver borovanadate **batteries**)
IT **Cathodes**
(**battery**, **internal resistance** and cathode content in silver borovanadate **batteries**)
IT 7440-44-0, Carbon, uses 7553-56-2, Iodine, uses
RL: DEV (Device component use); USES (Uses)
(**internal resistance** and cathode content in silver borovanadate **batteries**)
IT 1303-86-2, Boron oxide, uses **1314-62-1**, **Vanadium pentoxide**, uses 7783-96-2, Silver iodide 20667-12-3, Silver oxide
RL: NUU (Other use, unclassified); USES (Uses)
(**internal resistance** and cathode content in silver borovanadate **batteries**)
IT **1314-62-1**, **Vanadium pentoxide**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(**internal resistance** and cathode content in silver borovanadate **batteries**)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 26 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:537486 HCAPLUS
DN 121:137486
TI Rechargeable thin-film lithium **batteries**
AU Bates, J. B.; Gruzalski, G. R.; Dudney, N. J.; Luck, C. F.; Yu, Xiaohua
CS Oak Ridge National Laboratory, Oak Ridge, TN, 37831-6030, USA
SO Solid State Ionics (**1994**), 70-71(1-4), 619-28
CODEN: SSIOD3; ISSN: 0167-2738
DT Journal
LA English
AB Rechargeable thin-film **batteries** consisting of Li anodes, an amorphous inorg. electrolyte, and cathodes of Li intercalation compds. were fabricated and characterized. These include Li-TiS2, Li-V2O5, and Li-LixMn2O4 cells with open-circuit voltages at full charge of about 2.5 V, 3.7 V, and 4.2 V, resp. The realization of these **batteries**, which can be cycled thousands of times, was possible because of the stability of the amorphous lithium phosphorus oxynitride electrolyte. This material has a typical composition of Li3.3PO3.8N0.22 and a conductivity of 2 μS/cm at 25°. The thin-film cells were cycled to 100% depth-of-discharge at c.d. of 5-100 μA/cm2. Over most of the charge-discharge range, the **internal resistance** appears to be dominated by the cathode, and the major source of the **resistance** is the diffusion of Li+ from the electrolyte into the cathode. Chemical diffusion coeffs. were determined from a.c. impedance measurements.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium thin film **battery** performance; titanium sulfide lithium **battery** performance; **vanadium oxide** lithium **battery** performance; manganese lithium oxide **battery** performance
IT **Batteries, secondary**
(lithium, manufacture and characterization of thin-film)
IT Electric impedance
(of lithium/**vanadium oxide batteries**)
IT Electric resistance
(of lithium/**vanadium oxide batteries**, effect of voltage on)
IT **1314-62-1P, Vanadium oxide** (V2O5), uses
12039-13-3P, Titanium disulfide 39457-42-6P, Lithium manganese oxide
RL: PREP (Preparation); USES (Uses)
(cathodes, lithium **batteries** with, manufacture and characterization of thin-film)
IT 150499-40-4P, Lithium metaphosphate nitride oxide (Li3.3(PO3)N0.22O0.8)
RL: PREP (Preparation)
(electrolyte, lithium **batteries** with, manufacture and characterization of thin-film)
IT **1314-62-1P, Vanadium oxide** (V2O5), uses
RL: PREP (Preparation); USES (Uses)
(cathodes, lithium **batteries** with, manufacture and characterization of thin-film)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 27 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:327562 HCAPLUS
DN 120:327562
TI Method for preventing gas formation in **batteries**
IN Crespi, Ann M.
PA Medtronic, Inc., USA
SO U.S., 5 pp. Cont.-in-part of U.S. 5,180,642.
CODEN: USXXAM
DT **Patent**
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5308714	A	19940503	US 1992-917541	19920721 <--
	US 5180642	A	19930119	US 1992-840224	19920224 <--
PRAI	US 1992-840224	A2	19920224 <--		

AB A nonaq.-electrolyte **battery** comprises an active metal anode and a cathode containing a minor amount of V6O13. The resulting **battery** is **resistant** to **internal** gas generation. The use of V6O13 is especially useful in Li-MnO2 **batteries**.
IC ICM H01M0006-14
INCL 429059000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** lithium manganese dioxide; gas generation prevention lithium **battery**; **vanadium oxide** manganese dioxide cathode
IT **Batteries, primary**
(lithium-manganese dioxide, gas generation prevention in)
IT **Cathodes**
(**battery**, manganese dioxide, containing **vanadium oxide**, for gas generation prevention)
IT **12037-42-2, Vanadium oxide** (V6O13)
RL: USES (Uses)
(cathodes containing, manganese dioxide, for **batteries** for gas generation prevention)
IT 1313-13-9, Manganese dioxide, uses
RL: USES (Uses)
(cathodes, containing **vanadium oxide**, for **batteries** for gas generation prevention)
IT **12037-42-2, Vanadium oxide** (V6O13)
RL: USES (Uses)
(cathodes containing, manganese dioxide, for **batteries** for gas generation prevention)
RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

L54 ANSWER 28 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:249292 HCAPLUS
DN 120:249292
TI Non-aqueous electrolyte secondary **battery** and its production
IN Tahara, Kensuke; Ishikawa, Hideki; Iwasaki, Fumiharu; Yahagi, Seiji; Sakata, Akifumi; Sakai, Tsugio

PA Seiko Instruments Inc., Japan
SO Eur. Pat. Appl., 36 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 582173	A1	19940209	EP 1993-111938	19930726 <--
	EP 582173	B1	19980603		
	R: DE, FR, GB				
	JP 06325765	A	19941125	JP 1993-162958	19930630 <--
	JP 2997741	B2	20000111		
	US 5395711	A	19950307	US 1993-97714	19930727 <--
PRAI	JP 1992-202383	A	19920729	<--	
	JP 1992-265179	A	19921002	<--	
	JP 1993-35851	A	19930224	<--	
	JP 1993-43058	A	19930303	<--	
	JP 1993-60520	A	19930319	<--	
	JP 1993-162958	A	19930630	<--	

AB The **battery** contains a material capable of absorbing and releasing lithium as anode active material, in which a lithium ion-conductive nonaq. electrolyte is used. A silicon oxide, especially a silicon lower oxide containing lithium represented by a composition formula LixSiOy (where x>0, 2>y>0), or a silicate containing lithium is used as anode active material. The potential of the anode material is low and base, the charge and discharge **capacity** in a base potential region of 0-1 V with respect to metallic lithium is large, and the polarization (**internal resistance**) during charge and discharge is small, so that a secondary **battery** having a high voltage and a high energy d. is obtained in which charge and discharge characteristics with a large **current** are excellent, the deterioration due to excessive charge and excessive discharge is small, the cycle life is long and the reliability is high.

IC ICM H01M0004-48
ICS H01M0010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** secondary nonaq lithium
IT Carbonates, uses
RL: USES (Uses)
(dialkyl, electrolyte, in nonaq. lithium secondary **batteries**)
IT **Batteries, secondary**
(lithium silicon oxide, nonaq.)
IT 7782-42-5, Graphite, uses 12627-14-4
RL: DEV (Device component use); USES (Uses)
(anode containing, in nonaq. lithium secondary **batteries**)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(anode containing, in nonaq. secondary **batteries**)
IT 1310-65-2, Lithium hydroxide **1314-62-1, Vanadium pentaoxide**, uses 7631-86-9, Silica, uses 10102-24-6, Lithium silicate (li2sio3) 113443-18-8, Silicon monoxide
RL: DEV (Device component use); USES (Uses)
(anode from, in nonaq. lithium secondary **batteries**)
IT 154471-92-8, Cobalt lithium borate oxide (Co0.9Li(BO3)0.1O1.7)
RL: DEV (Device component use); USES (Uses)
(cathode containing, in nonaq. lithium secondary **batteries**)
IT 1303-86-2, Boron oxide, uses 7542-09-8, Cobalt carbonate
RL: DEV (Device component use); USES (Uses)

(cathode from, in nonaq. lithium secondary **batteries**)
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 616-38-6, Dimethyl carbonate 7791-03-9, Lithium perchlorate 21324-40-3, Lithium hexafluoro phosphate
RL: USES (Uses)
(electrolyte, in nonaq. lithium secondary **batteries**)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(anode containing, in nonaq. secondary **batteries**)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **1314-62-1**, **Vanadium pentaoxide**, uses
RL: DEV (Device component use); USES (Uses)
(anode from, in nonaq. lithium secondary **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 29 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:111655 HCAPLUS
DN 120:111655
TI Silver molybdovanadate electrochemical cells
AU Arof, A. K.
CS Cent. Found. Stud. Sci., Univ. Malaya, Kuala Lumpur, 59100, Malay.
SO Physica Status Solidi A: Applied Research (**1993**), 140(2), 491-9
CODEN: PSSABA; ISSN: 0031-8965
DT Journal
LA English
AB Silver molybdovanadate glass of composition 66.67 AgI -22.22 Ag2O -9.99 V2O5 -1.11 mol% MoO3 was prepared by liquid nitrogen temperature quenching of the melt.
The glassy nature of the phase was confirmed by powder x-ray diffraction. The glass was used to make pellets compacted at pressures of 6, 8, 10, 12, 14, 16, 18, and 20 MPa. The room temperature (300 K) elec. conductivity of each pellet
was measured by impedance spectroscopy, to determine the effect of pressure on conductivity The pellets were used as electrolyte in electrochem. cells with configuration (0.1 g Ag + 0.1 g electrolyte) as anode and (0.1 g I + 0.1 g electrolyte + 0.02 g C) as the cathode, separated by 0.5 g electrolyte. Each cell was compacted at different pressures of 6, 14, and 20 MPa. The cells were discharged at 30 μA load current. The cell compacted at 14 MPa had the best discharge characteristics; at this compacting pressure, the elec. conductivity of the electrolyte was also highest. The surface morphol. of
the pellets compacted at different pressures was studied by SEM. The **internal resistance** of a single cell was 221 Ω;
for 2 cells in parallel, the **internal resistance** was
135 Ω. The discharge characteristics of the parallel combination are given.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 72, 76
ST silver molybdovanadate glass electrolyte **battery**
IT **Battery electrolytes**

(silver molybdovanadate glass, manufacture and phase characteristics of)
IT **Batteries, primary**
(silver-silver molybdovanadate-iodine, discharge characteristics of)
IT 1313-27-5, Molybdenum oxide (MoO3), uses **1314-62-1**, **Vanadium oxide** (V2O5), uses 7783-96-2, Silver iodide (AgI) 20667-12-3, Silver oxide (Ag2O)
RL: USES (Uses)
(molybdovanadate glass from, as electrolyte in **batteries**)
IT **1314-62-1**, **Vanadium oxide** (V2O5), uses
RL: USES (Uses)
(molybdovanadate glass from, as electrolyte in **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 30 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1994:58443 HCAPLUS
DN 120:58443
TI Electrical properties of silver vanadate electrochemical cells
AU Arof, A. K.; Radhakrishna, S.
CS Physics Division, Centre for Foundation Studies in Science, University of Malaya, Kuala Lumpur, 59100, Malay.
SO Journal of Alloys and Compounds (**1993**), 200(1-2), 129-34
CODEN: JALCEU; ISSN: 0925-8388
DT Journal
LA English
AB The Ag iodide-based ternary system aAgI-bAg2O-cV2O5 (a = 10-90; b/c = 2) was prepared by rapid quenching of the melt at liquid N temperature X-ray diffraction confirmed the glassy or polycryst. nature of the powdered phases. The 70AgI-20Ag2O-10V2O5 phase has the highest room-temperature (300 K) elec. conductivity of 0.011 S/m at 1 kHz. SEM showed that the surface of the 70AgI-20Ag2O-10V2O5 as-quenched phase contains sep. agglomerates. IR spectroscopy revealed bands at approx. 960, 920, 890, 850, 820, and 700/cm, indicating the possible existence of [VO4]3- clusters. Solid-state **batteries** fabricated from the phase with the highest elec. conductivity showed that the transference number is almost unity and that the phase is an ionic conductor. The **internal resistance** of this **battery** is .apprx.460 Ω. When discharged at a load **current** of 30 μA, the c.d. is 0.04 mA/cm2, the discharge **capacity** is 3.78 C, the power d. is 0.012 W/kg, and the energy d. is 1.512 J/g for a circular cell of mass 1.55 g and a surface area of 1.3 cm2.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72, 76
ST iodine silver **battery** elec property; silver iodide vanadate glass electrolyte **battery**
IT **Battery electrolytes**
(silver iodide vanadate glass, elec. conductivity of)
IT Glass, oxide
RL: USES (Uses)
(silver iodide vanadate, electrolyte, elec. properties of, for silver/iodine **batteries**)
IT **Batteries, primary**
(solid-state, silver/iodine, with silver iodide vanadate glass electrolyte, performance of)
IT **1314-62-1**, **Vanadium oxide** (V2O5), uses
RL: USES (Uses)
(glass, silver iodide, electrolyte, elec. properties of, for

silver/iodine **batteries**)
IT 7783-96-2, Silver iodide (AgI) 20667-12-3, Silver oxide (Ag2O)
RL: USES (Uses)
(glass, vanadate, electrolyte, elec. properties of, for silver/iodine **batteries**)
IT **1314-62-1, Vanadium oxide** (V2O5), uses
RL: USES (Uses)
(glass, silver iodide, electrolyte, elec. properties of, for silver/iodine **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 31 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1993:630021 HCAPLUS
DN 119:230021
TI Performance characteristics of quaternary silver-based **battery** systems
AU Arof, Abdul Kariem; Radhakrishna, S.
CS Cent. Found. Stud. Sci., Univ. Malaya, Kuala Lumpur, 59100, Malay.
SO Materials Science & Engineering, B: Solid-State Materials for Advanced Technology (**1993**), B20(3), 256-60
CODEN: MSBTEK; ISSN: 0921-5107
DT Journal
LA English
AB The quaternary glassy system of 60AgI-20Ag2O-16MoO3-4V2O5 was prepared by melt quenching for use as electrolyte in solid-state Ag/I **batteries**. The solid formed was powdered and characterized by x-ray diffraction, IR spectroscopy, and energy dispersive anal. of x-rays. The elec. conductivity was 0.0023 S/cm at 1 kHz and 300 K. The discharge characteristics for the **battery** system were measured at constant current loads of 1 and 30 μA. The **internal resistance** of the **battery** system was calculated at .apprx.4.5 kΩ and the zero current drain was 0.678 V. The operating time for the voltage to reach 200 mV for 30 μA was 50 h. The calculated energy d. for 30 μA was 0.3 W-h/kg.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
ST silver vanadium iodide molybdate glass electrolyte; **battery** silver iodine glass electrolyte
IT **Battery electrolytes**
(silver iodide vanadomolybdate glass, with good mech. stability)
IT Glass, oxide
RL: USES (Uses)
(silver iodide vanadomolybdate, melt-quenched, for **battery** electrolyte)
IT **Batteries, primary**
(solid-state, silver/iodine, with silver iodide vanadomolybdate glass electrolyte, discharge performance of)
IT 1313-27-5, Molybdenum oxide (MoO3), uses **1314-62-1, Vanadium oxide** (V2O5), uses 7783-96-2, Silver iodide (AgI) 20667-12-3, Silver oxide (Ag2O)
RL: USES (Uses)
(electrolyte of quaternary glass system containing, for silver/iodine **batteries**)
IT **1314-62-1, Vanadium oxide** (V2O5), uses
RL: USES (Uses)
(electrolyte of quaternary glass system containing, for silver/iodine **batteries**)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 32 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1993:630003 HCAPLUS
DN 119:230003
TI New amorphous thin-film lithium electrolyte and rechargeable microbattery
AU Bates, J. B.; Gruzalski, G. R.; Dudney, N. J.; Luck, C. F.
CS Solid State Div., Oak Ridge Natl. Lab., Oak Ridge, TN, 37831-6030, USA
SO Proceedings of the International Power Sources Symposium (**1992**), 35th, 337-9
CODEN: PIPSEG
DT Journal
LA English
AB Sputtering of Li3PO4 in pure N results in the formation of an amorphous Li electrolyte that is stable in contact with Li and has elec. properties that are suitable for application in a thin-film **battery**. Thin-film secondary Li **batteries** were fabricated and characterized using this electrolyte between a Li anode and an amorphous V oxide cathode. The **batteries** have open-circuit voltage of 3.6-3.7 V and a capacity of 130 μA-h/cm2 when discharged to 1.5 V. The a.c. impedance of the **batteries** measured at different stages of discharge indicates a significant decrease in **internal resistance** at about the midpoint of the discharge.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium amorphous thin film electrolyte **battery**; **vanadium oxide** lithium **battery** amorphous electrolyte
IT **Battery electrolytes**
(lithium phosphorus oxynitride, thin-film amorphous, prepared by sputtering of lithium phosphate in nitrogen atmospheric, elec. conductivity of)
IT **Batteries, secondary**
(lithium/**vanadium oxide**, with thin-film amorphous lithium phosphorus oxynitride electrolyte, manufacture and performance of)

L54 ANSWER 33 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1993:629991 HCAPLUS
DN 119:229991
TI Feasibility study of sulfone-based electrolytes for a medium-temperature reserve cell concept
AU Giwa, C. O.
CS Aerosp. Div., Def. Res. Agency, Farnborough/Hamspshire, GU14 6TD, UK
SO Proceedings of the International Power Sources Symposium (**1992**), 35th, 215-18
CODEN: PIPSEG
DT Journal
LA English
AB A feasibility study was performed on materials for a medium-temperature (178-270°) reserve primary **battery**, which is activated by melting Li salt-sulfone mixture in order to provide elec. power. The aim was to define performance parameters for use as a high-energy d. **battery** capable of c.d. 5-50 mA/cm2. The cathodes used was Ag2CrO4 and V6O13. The most promising test **battery** used Ag2CrO4 cathode, di-p-tolylsulfone-LiClO4 electrolyte, and Li-Al alloy anode. This **battery** achieved maximum c.d. of 40 mA/cm2. Some sulfone-based **batteries** exhibited high voltage drops due to the high **internal resistance**. These **batteries**

can be used to power a heat sensor.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76
ST sulfone electrolyte feasibility study **battery**; lithium silver chromate **battery** sulfone electrolyte; **vanadium oxide** lithium **battery** sulfone electrolyte
IT **Battery electrolytes**
(lithium salt-sulfone, elec. conductivity of)
IT **Batteries, primary**
(lithium-aluminum alloy/silver chromate and lithium-aluminum alloy/**vanadium oxide**, with sulfone-based electrolyte, performance of)
IT 1070-92-4 151144-93-3
RL: USES (Uses)
(electrolyte containing lithium hexafluoroarsenate and, elec. conductivity of, for **batteries**)
IT 67-71-0, Dimethylsulfone
RL: USES (Uses)
(electrolyte containing lithium perchlorate and, elec. conductivity of, for **batteries**)
IT 599-66-6, Di-p-tolylsulfone
RL: USES (Uses)
(electrolyte containing lithium salt and, elec. conductivity of, for **batteries**)
IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9
RL: USES (Uses)
(electrolyte containing sulfone and, elec. conductivity of, for **batteries**)
IT 3112-79-6 21467-59-4
RL: USES (Uses)
(electrolyte containing, lithium **batteries** with, performance of)

L54 ANSWER 34 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1993:431480 HCAPLUS
DN 119:31480
TI Feasibility study of sulfone-based electrolytes for a medium-temperature reserve cell concept
AU Giwa, C. O.
CS Mater. Struct. Dep., Def. Res. Agency, Farnborough/Hampshire, GU14 6TD, UK
SO Journal of Power Sources (**1993**), 42(3), 389-97
CODEN: JPSODZ; ISSN: 0378-7753
DT Journal
LA English
AB A feasibility study on materials for a medium-temperature (178-270°) reserve primary **battery**, which is activated by melting Li salt/sulfone mixture to provide elec. power, was performed. Performance parameters for use as a high energy d. **battery** capable of c.d. 5-50 mA/cm2 were defined. The cathodes used were Ag2CrO4 and V6O13. The most promising test cell used Ag2CrO4 cathode, di-p-tolylsulfone/LiClO4 electrolyte, and Li-Al alloy anode. Maximum current capability was 40 mA/cm2. The observed voltage drops were rather high due to the high **internal resistance** of some sulfone-based cells. These cells can be used to power heat sensors.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST sulfone **battery** electrolyte feasibility study; silver chromate cathode **battery**; **vanadium oxide** cathode **battery**; lithium aluminum alloy anode **battery**
IT **Battery electrolytes**

(lithium salt, containing sulfone-based solvents, feasibility study of)
IT **Batteries, primary**
(lithium-aluminum alloy/silver chromate, discharge performance of, for heat sensors)
IT 12798-95-7
RL: USES (Uses)
(anodes, in **batteries** with sulfone-based electrolytes)
IT 7631-86-9, Silica, uses
RL: USES (Uses)
(binder, discharge performance of reserve primary **batteries** with sulfone-based electrolytes in relation to)
IT 7784-01-2, Silver chromate (Ag2CrO4) **12037-42-2**, **Vanadium oxide** (V6O13)
RL: USES (Uses)
(cathodes, in **batteries** with sulfone-based electrolytes)
IT 67-71-0, Dimethylsulfone 599-66-6, Di-p-tolylsulfone 3112-79-6 4610-99-5 21467-59-4 59099-56-8
RL: USES (Uses)
(electrolytes containing, lithium salt, conductivity of, for reserve primary **batteries**)
IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate (LiBF4) 29935-35-1, Lithium hexafluoroarsenate (LiAsF6) 33454-82-9
RL: USES (Uses)
(electrolytes, containing sulfone-based solvents, conductivity of, for reserve primary **batteries**)
IT **12037-42-2**, **Vanadium oxide** (V6O13)
RL: USES (Uses)
(cathodes, in **batteries** with sulfone-based electrolytes)
RN 12037-42-2 HCAPLUS
CN Vanadium oxide (V6O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
V	6	7440-62-2

L54 ANSWER 35 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1992:87678 HCAPLUS
DN 116:87678
TI Electrode-active mass and its manufacture
IN Tonomura, Tadashi; Ito, Shuji
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 03194850	A	19910826	JP 1989-333343	19891222 <--
PRAI JP 1989-333343		19891222 <--		

AB The electrode-active mass is particles of Ag vanadate molybdate Agx(**V2O5**)a(MoO3)b, where x = 0.4-0.8, b = 0.01-0.2, and a + b = 1.0, where the particles are coated with fine Ag2S powder, and is prepared by adding a soluble Ag salt and a S-containing compound to a dispersion of the Ag vanadate molybdate or by spraying a Ag salt solution and the S-containing compound

(or its solution) onto the Ag vanadate molybdate suspended in a gas stream. **Batteries** using electrodes prepared from this active mass have low **internal resistance** and high output current.

IC ICM H01M0004-02
ICS H01M0004-04; H01M0010-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** electrode silver vanadate molybdate; silver sulfide coating **battery** electrode

IT **Electrodes**
(**battery**, silver vanadate molybdate particles for, silver sulfide powder-coated, manufacture of)

IT 1313-27-5D, Molybdenum oxide (MoO3), compds. with silver **vanadium oxide** 126044-10-8D, Silver **vanadium oxide** (Ag0.7V2O5), compds. with molybdenum oxide
RL: USES (Uses)
(electrodes from silver sulfide-coated, for **batteries**)

IT 21548-73-2, Silver sulfide (Ag2S)
RL: USES (Uses)
(electrodes from silver vanadate molybdate particles coated with, for **batteries**)

L54 ANSWER 36 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1991:231986 HCAPLUS
DN 114:231986
TI Solid state lithium **batteries**: evaluation and optimization
AU Neat, R. J.; Goodbody, L. E.; Man, A. K. H.
CS Harwell Lab., Comm. Eur. Communities, Oxon., OX11 0RA, UK
SO Comm. Eur. Communities, [Rep.] EUR (**1991**), EUR 13135, 54 pp.
CODEN: CECED9; ISSN: 0303-755X
DT Report
LA English
AB The electrolyte PEO14:LiClO4 in a Li-V6O13 **battery** (35 cm2, 50-70 mA-h) was optimized in terms of ionic conductivity, cell **internal resistance**, cell rate performance, and first discharge performance. The cells tolerated moderate levels of overdischarge, but large levels caused premature deterioration of the long term cycling. Overcharge to 3.50 V was beneficial to the cell cycling performance, but overcharge to 3.75 V caused cell failure due to electrolyte breakdown. The optimum charging condition is: constant current to 3.50 V with a 2 h potentiostatic hold at 3.50 V to provide at top-up period. The **battery** had excellent capacity retention over the first 20-30 cycles. A unit of 4 standard cells in parallel exhibited good cycle performance. The polymer electrolyte **batteries** are safe.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72, 76

ST lithium polymer electrolyte **battery** optimization; polyethylene oxide electrolyte lithium **battery**; safety lithium polymer electrolyte **battery**

IT **Batteries, secondary**
(lithium-**vanadium oxide**, with PEO-lithium perchlorate electrolyte, evaluation and optimization of)

IT Safety
(of lithium-**vanadium oxide battery** with PEO-lithium perchlorate electrolyte)

IT 7791-03-9, Lithium perchlorate
RL: USES (Uses)
(electrolyte containing PEO and, lithium-**vanadium oxide battery** with, evaluation and optimization of)

IT **7439-93-2D**, Lithium, PEO complexes 25322-68-3D, PEO, lithium complexes

RL: USES (Uses)
(electrolyte, containing perchlorate, lithium-**vanadium oxide battery** with)
IT **7439-93-2D**, Lithium, PEO complexes
RL: USES (Uses)
(electrolyte, containing perchlorate, lithium-**vanadium oxide battery** with)
RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

L54 ANSWER 37 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:634661 HCAPLUS
DN 113:234661
TI Secondary lithium **batteries**
IN Takada, Kenichi; Koshiba, Nobuharu; Ikehata, Toshihiko
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 02174075	A	19900705	JP 1988-332866	19881227 <--
PRAI JP 1988-332866		19881227 <--		

AB Li **batteries** have a **V2O5**-based cathode and an electrolyte of LiBF4 and solvent mixts. containing γ-butyrolactone. These **batteries** are tolerant to overcharging. Thus, **batteries** using **V2O5**-based cathode, a 9:1 (weight) Al-Li alloy anode, and 1M LiBF4 in γ-butyrolactone-propylene carbonate and/or DME electrolyte showed only a small increase in **internal resistance** and a small decrease of capacity when stored at 60° for 60 days and with 3.5 V applied charging voltage, vs. large **resistance** increase and large capacity decrease observed with **batteries** having LiClO4 electrolyte. The cycle life was .apprx.1000 cycles when the electrolyte contained 10-50 volume% γ-butyrolactone.
IC ICM H01M0010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST electrolyte lithium **battery** overcharging tolerance
IT **Batteries, secondary**
(lithium-**vanadium oxide**, with electrolytes containing butyrolactone and lithium fluoroborate, overcharging-tolerant)
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 629-14-1, 1,2-Diethoxyethane 4437-85-8, Butylene carbonate 5137-45-1
RL: USES (Uses)
(electrolytes containing butyrolactone and lithium fluoroborate and, for overcharging-tolerant **batteries**)
IT 14283-07-9, Lithium fluoroborate
RL: USES (Uses)
(electrolytes containing butyrolactone and, for overcharging-tolerant lithium **batteries**)
IT 96-48-0, γ-Butyrolactone
RL: USES (Uses)

(electrolytes containing lithium fluoroborate and, for overcharging-tolerant lithium **batteries**)

L54 ANSWER 38 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:594915 HCAPLUS
DN 113:194915
TI Secondary nonaqueous **batteries**
IN Ikehata, Toshihiko; Koshiba, Nobuharu; Takada, Kenichi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 02174070	A	19900705	JP 1988-332863	19881227 <--
PRAI JP 1988-332863		19881227 <--		

AB Stainless steel containing 1-3 Mo and 15-18% Cr is used as metal anode collector welded to the **battery** cover in the title Li **batteries**. This prevents corrosion of the metal cover that occurs in overdischarged **batteries** having cathodes of highly oxidizing potential. Thus, **batteries** having Al-Li anode, **V2O5** -based cathode, and 1M LiClO4/1:1 (volume) propylene carbonate-DME electrolyte were fabricated by using the invention (SUS 444 stainless steel) anode collector. When discharged for 2 mo at 60°, the **batteries** showed open-circuit voltage -0.025 V, **internal resistance** 5.5 Ω, and capacity 21.5 mA-h, vs. -0.028 V, 112.5 Ω, and 6.8 mA-h for a reference **battery** using SUS 304 stainless steel anode collector.
IC ICM H01M0004-64
ICS H01M0004-66; H01M0010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 55
ST lithium **battery** anode collector; stainless steel **battery** anode collector
IT **Batteries, secondary**
(lithium-**vanadium oxide**, high-performance)
IT **Anodes**
(**battery**, lithium, stainless steel current collector for)
IT 11107-04-3, SUS316 54824-47-4, SUS444
RL: USES (Uses)
(anode collectors, for secondary lithium **batteries**, for prevention of corrosion at overdischarging)

L54 ANSWER 39 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1990:594802 HCAPLUS
DN 113:194802
TI Analysis of solid state **battery** resistances
AU Abhyankar, Neelima M.; Prasad, Ramakuru N.; Karekar, R. N.
CS Dep. Physics, Univ. Poona, Pune, 411007, India
SO Thin Solid Films (**1990**), 190(1), 29-37
CODEN: THSFAP; ISSN: 0040-6090
DT Journal
LA English
AB The **internal resistance** of solid state **batteries** was measured as a function of electrolyte morphol. (thin film or pellet), for Pb/PbCl2:n MCl/AgCl/Ag, where n = 1,3, or 5 mol.% and M = K or Rb, and for Cu/Rb4Cu16I7Cl13/V2O5 or Se **batteries**. The elec. **resistance** of the electrolyte itself was measured using an

a.c. impedance bridge and compared with the cell **resistance** measured by the loading method and the open-circuit voltage/short-circuit current method. The total **internal resistance** (Rin) comprises: migration, dissociation, diffusion, reaction, and electronic shunt components. The Rin varied nonlinearly with load **resistance**. The load current is nearly linear for the Cu ion conductor electrolyte.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST **battery** solid state resistance; lead potassium chloride electrolyte **battery**; rubidium lead chloride electrolyte **battery**; copper rubidium iodide chloride electrolyte **battery**

IT Electric resistance
(of solid-electrolyte **batteries**)

IT **Batteries, primary**
(solid-electrolyte, elec. resistance of, measurement of)

IT **1314-62-1, Vanadium pentoxide**, uses and miscellaneous 7782-49-2, Selenium, uses and miscellaneous
RL: USES (Uses)
(cathodes, solid-electrolyte **battery** with copper anodes and, elec. resistance of)

IT 7758-95-4, Lead chloride
RL: USES (Uses)
(electrolyte of alkali metal chloride-doped, solid-state **battery** with, elec. resistance of)

IT 7447-40-7, Potassium chloride, uses and miscellaneous 7791-11-9, Rubidium chloride, uses and miscellaneous
RL: USES (Uses)
(electrolyte of lead chloride doped with, solid-state **battery** with, elec. resistance of)

IT 72067-41-5, Copper rubidium chloride iodide(Cu16Rb4Cl13I7)
RL: USES (Uses)
(electrolyte, solid-state **battery** with, elec. resistance of)

IT **1314-62-1, Vanadium pentoxide**, uses and miscellaneous
RL: USES (Uses)
(cathodes, solid-electrolyte **battery** with copper anodes and, elec. resistance of)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 40 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1987:217008 HCAPLUS
DN 106:217008
TI Laminar solid-electrolyte **batteries**
IN Mizuno, Yasuo; Kondo, Shigeo
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61263060	A	19861121	JP 1985-105111	19850517 <--
PRAI	JP 1985-105111		19850517 <--		

AB One or both electrodes of the title **batteries** contain layers of solid electrolyte to decrease the **internal resistance**.

A substrate was coated successively with a 0.1-μ Ni-20% Cr cathode collector, a cathode of alternate WO3 and Li4SiO4-40%Li3PO4 layers (3 layers each), a 2-μ Li4SiO4-40% Li3PO4 electrolyte layer, a 1-μ WO3 film, a Ni anode collector, and a solid electrolyte. The assembly was immersed in 1M LiClO4 in THF and the WO3 film was short circuited with a Li piece to intercalate Li into the film to form an anode. Dried **battery** was coated with epoxy resin layer. The short circuit current of the **battery** was twice of that of a **battery** without the electrolyte layers in the cathode.

IC ICM H01M0006-18
ICS H01M0004-02; H01M0004-06; H01M0010-36
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** solid electrolyte cathode; tungsten oxide cathode electrolyte; lithium silicate tungsten oxide cathode; phosphate lithium tungsten oxide cathode
IT **Cathodes**
(**battery**, tungsten oxide, with lithium silicate-lithium phosphate layers)
IT 10377-52-3 12031-66-2 13453-84-4 15138-76-8
RL: USES (Uses)
(cathodes containing, metal oxide, for **batteries**)
IT 1313-27-5, uses and miscellaneous 1314-35-8, uses and miscellaneous 1314-61-0 **1314-62-1**, uses and miscellaneous 13463-67-7, uses and miscellaneous
RL: USES (Uses)
(cathodes, containing alternate layers of solid electrolyte, for solid-state **batteries**)
IT **1314-62-1**, uses and miscellaneous
RL: USES (Uses)
(cathodes, containing alternate layers of solid electrolyte, for solid-state **batteries**)
RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 41 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1987:216990 HCAPLUS
DN 106:216990
TI Secondary nonaqueous **batteries**
IN Matsui, Toru; Yamaura, Junichi; Toyoguchi, Yoshinori
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 61237366	A	19861022	JP 1985-77656	19850412 <--
PRAI JP 1985-77656		19850412 <--		

AB The **batteries** with an alkali metal ion-conducting nonaq. electrolyte and alkali metal anode have a cathode containing MnO2 particles surface coated with aM2O5.bMO3 (a = 0, 1, 2; b = 0, 1; M = VxMoyWz; x + y + z = 1, for which the mol ratio M/Mn is 0.02-0.20). The oxide bonded to the MnO2 surface prevents the increase of cathode **internal resistance** due to contraction and expansion during cycling and increases the **battery** performance. **V2O5** and γ-MnO2 (1.569 and 30 g, resp.) were mixed with 15 mL water and the paste was dried at 80 and 250°. The treated MnO2, C black, and

PTFE were mixed in 100:5:10 ratio and pressed into a casing with an expanded Ti collector, the anode was a Li foil, and the electrolyte was 1M LiClO4 in 1:1 propylene carbonate-MeOC2H4OMe. The **battery** capacity was 26.6 and 25.5 mA-h at the 2nd and 10th cycle, resp. The resp. capacities of a control **battery** with a cathode of a simple of MnO2-**V2O5** mixture were 26.0 and 22.2 mA-h.

IC ICM H01M0004-50
ICS H01M0004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST manganese dioxide cathode oxide coating; **vanadium oxide** **battery** cathode coating; molybdenum oxide **battery** cathode coating; tungsten oxide **battery** cathode coating

IT **Cathodes**
(**battery**, manganese dioxide, **vanadium oxide** - and molybdenum oxide- and tungsten oxide-coated)

IT 1313-27-5, Molybdenum oxide (MoO3), uses and miscellaneous 1314-35-8, Tungsten oxide (WO3), uses and miscellaneous **1314-62-1**, **Vanadium oxide** (**V2O5**), uses and miscellaneous 12163-73-4, Molybdenum oxide (Mo2O5) 108601-95-2, Molybdenum **vanadium oxide** ((V0.8Mo0.2)2O5 108601-96-3, Molybdenum tungsten oxide ((Mo0.08W0.92)O3)
RL: USES (Uses)
(cathodes from manganese dioxide coated with, for lithium **batteries**)

IT 1313-13-9, Manganese dioxide, uses and miscellaneous
RL: USES (Uses)
(cathodes, **vanadium oxide**- and molybdenum oxide- and tungsten oxide-coated, for lithium **batteries**)

IT **1314-62-1**, **Vanadium oxide** (**V2O5**), uses and miscellaneous
RL: USES (Uses)
(cathodes from manganese dioxide coated with, for lithium **batteries**)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 42 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1987:70347 HCAPLUS
DN 106:70347
TI Lithium **batteries**
IN Matsumoto, Kazunobu; Nagai, Tatsu; Kajita, Kozo; Manabe, Toshikatsu
PA Hitachi Maxell, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61198556	A	19860902	JP 1985-39841	19850227 <--
PRAI	JP 1985-39841		19850227 <--		

AB Active materials of low electronic conductivity are electroless coated with a metal for use as cathodes in Li **batteries**. Thus, **V2O5** particles (average diameter 30μ) were electroless coated with 700-Å Ni in a bath containing Ni sulfate 40, Na citrate 20, NaOAC 14, NaH2PO2.H2O 20, and NH4Cl 5 g/L and pressed to form a 1.5-mm-thick cathode. A **battery** using this cathode, a Li anode, and 1M LiPF6 in 60:30:5 (volume) 4-methyl-1,3-dioxolane-MeOC2H4OMe-HMPA electrolyte showed an

internal resistance of 5 Ω vs. 10 KΩ and 5 Ω for control **batteries** using cathodes prepared from **V2O5** mixed with 25 and 35 volume % Ni powder, resp. The resp. capacities for these 3 **batteries** were 0.58, 0, and 0.35 A-h/cm2. The small amount of Ni required for the cathodes by this method increased the effective energy d. of **batteries**.

IC ICM H01M0004-48
ICS H01M0004-62

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

ST **battery** lithium **vanadium oxide**; cathode **vanadium oxide** nickel coating

IT **Cathodes**
(**battery**, nickel-coated **vanadium oxide**)

IT **1314-62-1**, **Vanadium pentoxide**, uses and miscellaneous
RL: USES (Uses)
(cathodes from nickel-coated powdered, high-conductivity, for button-type lithium **batteries**)

IT 7440-02-0, Nickel, uses and miscellaneous
RL: USES (Uses)
(cathodes from **vanadium oxide** particles coated with, high-conductivity, for button-type lithium **batteries**)

IT **1314-62-1**, **Vanadium pentoxide**, uses and miscellaneous
RL: USES (Uses)
(cathodes from nickel-coated powdered, high-conductivity, for button-type lithium **batteries**)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 43 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1985:512237 HCAPLUS
DN 103:112237
TI Sheetlike **battery**
PA Seiko Instruments and Electronics, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60032252	A	19850219	JP 1983-141582	19830802 <--
PRAI	JP 1983-141582		19830802 <--		

AB A sheetlike **battery** is described, which consists of thin-layer or sheetlike cathode and anode active materials (e.g., Zn and MnO2) and sheetlike cathode and anode collectors. The **battery** is provided with ≥1 portions spot adhered in the thickness direction at the central region of the **battery** to decrease the **internal resistance** and improve the storage property. Optionally, the spot-adhered portions may be prepared by heat sealing.

IC ICM H01M0006-12
CC 72-3 (Electrochemistry)
ST zinc manganese oxide **battery**; sheet like **battery**
IT **Batteries**, **primary**

(sheet-like)
IT 7440-43-9, uses and miscellaneous 7440-66-6, uses and miscellaneous
RL: USES (Uses)
(anode, in sheet-like **battery**)
IT 7429-90-5, uses and miscellaneous 7440-23-5, uses and miscellaneous
RL: USES (Uses)
(anode, in sheet-like **battery** with organic electrolyte)
IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(anode, in sheet-like organic electrolyte or solid electrolyte **battery**)
IT 7440-22-4, uses and miscellaneous
RL: USES (Uses)
(anode, in sheet-like solid electrolyte **battery**)
IT 1313-13-9, uses and miscellaneous 7782-44-7, uses and miscellaneous
RL: USES (Uses)
(cathode, in sheet-like **battery** with cadmium or zinc)
IT 1301-96-8 12026-04-9 20667-12-3
RL: PRP (Properties)
(cathode, in sheet-like **battery** with cadmium or zinc)
IT **1314-62-1**, uses and miscellaneous 1317-38-0, uses and miscellaneous 1317-40-4
RL: USES (Uses)
(cathode, in sheet-like organic electrolyte **battery**)
IT 7784-01-2 11113-63-6 11126-12-8 12356-42-2
RL: PRP (Properties)
(cathode, in sheet-like organic electrolyte **battery**)
IT 7704-34-9, uses and miscellaneous
RL: USES (Uses)
(cathode, in sheet-like solid electrolyte **battery** with silver or lithium)
IT 874-81-7 12039-13-3 12298-69-0 34503-47-4
RL: PRP (Properties)
(cathode, in sheet-like solid electrolyte **battery** with silver or lithium)
IT 7790-29-6
RL: PRP (Properties)
(cathode, with lead sulfide in sheet-like solid electrolyte **battery** with silver or lithium)
IT 1314-87-0
RL: PRP (Properties)
(cathode, with rubidium iodide in sheet-like solid electrolyte **battery** with lithium or silver)
IT 1310-58-3, uses and miscellaneous 1310-73-2, uses and miscellaneous 7646-85-7, uses and miscellaneous
RL: USES (Uses)
(electrolyte containing, for zinc or cadmium sheet-like **battery**)
IT 7791-03-9 14283-07-9 29935-35-1
RL: PRP (Properties)
(electrolyte, in organic solvent for sheet-like **battery**)
IT 26134-62-3
RL: PRP (Properties)
(electrolyte, with and without lithium iodide and lithium hydroxide, for sheet-like **battery** with lithium or silver)
IT 10377-51-2
RL: PRP (Properties)
(solid electrolyte containing, for sheet-like **battery** with silver or lithium)
IT 1310-65-2
RL: PRP (Properties)

(solid electrolyte from lithium iodide and lithium nitrate and, for sheet-like lithium or silver **battery**)

IT 1344-28-1, uses and miscellaneous
RL: USES (Uses)
(solid electrolyte from lithium iodide containing, for sheet-like **battery** with silver or lithium)

IT 7550-35-8 10377-51-2 12267-44-6 37220-89-6
RL: PRP (Properties)
(solid electrolyte, in sheet-like **battery** with silver or lithium)

IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(anode, in sheet-like organic electrolyte or solid electrolyte **battery**)

RN 7439-93-2 HCAPLUS
CN Lithium (7CI, 8CI, 9CI) (CA INDEX NAME)

Li

IT **1314-62-1**, uses and miscellaneous
RL: USES (Uses)
(cathode, in sheet-like organic electrolyte **battery**)

RN 1314-62-1 HCAPLUS
CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L54 ANSWER 44 OF 44 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1985:409080 HCAPLUS
DN 103:9080
TI Solid-electrolyte **battery**
PA Sanyo Electric Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60041766	A	19850305	JP 1983-150582	19830818 <--
	JP 04030148	B	19920520		
PRAI	JP 1983-150582		19830818 <--		

AB A solid-electrolyte **battery** consists of a cathode, a Li anode, and a sintered electrolyte having γ-Li phosphate-type crystal structure and an additive of a lower m.p. The additive may be chloride, hydroxide, sulfate, or nitrate. The electrolyte shows high mech. strength and conductivity Thus, a 17:4:3 Li2CO3- SiO2-**V2O5** mixture was heated in air at 700° for 50 h. The Li4SiO4-Li3VO4 product was mixed with Nb2O5 in 1:5 ratio to obtain the cathode material, and the electrolyte was formed by mixing electrolyte with 5% Li2SO4. The **battery** prepared by press forming electrolyte and cathode at 900° to a 10-mm pellet, and by pressure bonding a Li anode on the other side of the electrolyte showed a good discharge property due to a low **internal resistance**.

IC ICM H01M0006-18
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
ST **battery** lithium niobium oxide; silicate vanadate lithium

battery electrolyte; sulfate lithium **battery** electrolyte

IT **Batteries, primary**
(lithium-niobium oxide, with lithium silicate-lithium vanadate solid electrolyte containing lithium sulfate)

IT **Cathodes**
(**battery**, niobium pentoxide, containing lithium silicate-lithium vanadate)

IT 1313-96-8 **1314-62-1**, uses and miscellaneous
RL: USES (Uses)
(cathodes, containing lithium silicate-lithium vanadate, **battery**)

IT 7447-41-8, uses and miscellaneous 7647-14-5, uses and miscellaneous 10377-48-7
RL: USES (Uses)
(electrolytes containing, lithium silicate-lithium vanadate, lithium-niobium oxide **battery**)

IT 13453-84-4D, solid solns. with lithium vanadate 15593-56-3D, solid solns. with lithium silicate
RL: USES (Uses)
(electrolytes, **battery** containing, lithium-niobium oxide)

IT **1314-62-1**, uses and miscellaneous
RL: USES (Uses)
(cathodes, containing lithium silicate-lithium vanadate, **battery**)

RN 1314-62-1 HCAPLUS

CN Vanadium oxide (V2O5) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

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